For Service Manuals contest
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### **SERVICE MANUAL**

## MODEL 1084P MONITOR includes 1084P-S SCHEMATIC

**JULY, 1988** 

PN-314890-01

CM 8505

8562

8762

8705

8762

8cm 515

8762

8cm 542

8cm 643

515

NAP 6523

643

# Cz commodore COMPUTERS

### **SERVICE MANUAL**

# MODEL 1084P MONITOR includes 1084P-S SCHEMATIC

**JULY, 1988** 

PN-314890-01

#### Commodore Business Machines, Inc.

1200 Wilson Drive, West Chester, Pennsylvania 19380 U.S.A.

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	nponent side view)		
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Power Supply P.C. Board	(component side view)		
<del>-</del>			
Waveforms			
	SPECIFICAT	IONS	
	CRT size .	13 inch diagonal	
	CRT Deflection Angle	90 degrees	
	CRT Mask Pitch:		
	-8CM505/CM8505/CM8705	0.65mm	
	-8CM515/8CM542/CM8562/		
	-8CM643	0.39mm	
	CRT Light Transmission:	56%	
	-CM8505/CM8705	50% 46%	
	-8CM505/8CM515/8CM643 -8CM542/CM8562/CM8762	46%	
	Power Requirements	115Vac/60Hz	
	Power Consumption	75W max.	
	Degaussing	Automatic (when	
	3	switching on set)	
	Video Input Signals:		
	CM8505/CM8705/8CM505/8		
	RGB ano	log 0.7, composite sync.	
		6 pin connector	
	Composite video	1Vp-p.	
		ive sync, RCA connector B-1 TTL, separate horiz.	
	.ng	and vert. sync,	
		8 pin connector	
	Horizontal Scanning Frequency	•	
	Horizontal Frequency Drift	1 % max.	
	Horizontal Flyback Time	12uS max.	
	Horizontal Blanking Time	12uS max.	
	Vertical Scanning Frequency	47-62.5Hz	
	Vertical Frequency Drift	1% max.	
	Vertical Flyback Time	0.95mS max.	
	Vertical Blanking Time RGB Amp Bandwidth	(21H) 1.33mS 8MHz min.	
	RGB Amp Bandwidth (8CM643		
	Resolution:	, , , , , , , , , , , , , , , , , , , ,	
	-Vertical	240 lines	
	-CM8505/CM8705 Horizontal	390 dots	
	-8CM505 Horizontal	390 dots	
	-8CM515/CM8562 Horizontal	640 dots	
	-8CM542/8CM643	690 dots	
	Character Display:	000 characters (40 × 25)	
		000 characters (40 x 25) 600 characters (64 x 25)	
	-8CM505 19 -8CM515/8CM542/CM8562/		
	26 26 CIVID 13 13 13 13 13 13 13 13 13 13 13 13 13	000 characters (80 x 25)	
	Overshoot/Undershoot	5% max.	
	Black Level Shift	3% max.	
	Audio Input Signal	150mV eff.	
	Audio Input Impedance	10k	
	Audio Output Power	1W a 5% distortion	
	Audio Frequency Range	300Hz - 7kHz	
	Audio S/N Ratio	40dB min. less than 80%	
	Operating Humidity Range	320x350x387mm	
	Dimensions (HxWxD)	J20AJJ0AJ0711111	•

<sup>\*</sup> Specifications subject to change without notice.

#### IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all NAPCEC Equipment. The service procedures recommended by NAPCEC and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. NAPCEC could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, NAPCEC has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by NAPCEC must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

#### WARNING

Critical components having special safety characteristics are identified with an S by the Ref. No. in the parts list and enclosed within a broken line\* along with the safety symbol on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from the N.A.P. Consumer Electronics Corp. NAPCEC assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

Broken line: \_\_\_\_. \_\_\_

#### ADJUSTMENT PROCEDURES

#### **Adjustment Notes:**

#### unless otherwise specified:

- An isolation transformer must be used when servicing this unit.
- Line voltage maintained at 120Vac, 60Hz.
- The unit should be allowed to warm up for at least 30 minutes prior to making any adjustments.
- Voltages measured with repect to ground.
- Signal injection point is the Video In Jack.

#### R496 Pincushion Adjustment (8CM643 only)

- Inject a cross-hatch pattern and set Brightness Control (R598) and Contract Control (R585) to their mechanical centers.
- 2. Adjust R496 so that 14 blocks correspond to a width of 26cm.
- 3. Horizontal Amplitude and Centering Adjustment
- Vertical Amplitude and Centering Adjustment

#### **R598 Sub-Brightness Control Adjustment** (8CM643 only)

#### (Dual Trace Oscilloscope required)

- Inject a signal with a white raster to input connector.
- Adjust G2 (R727) and Contrast Control to minimum. Adjust Brightness Control to mechanical center.
- 3. Connect a DC coupled probe from Channel A of the oscilloscope to pin 1 of IC502.
- Connect a DC coupled probe from Channel B of the oscilloscope to the emitter of TS641.
- Adjust the Sub-Brightness (R598) to place the top of the video Signal (Channel A) at the same voltage level as the emitter of TS641 (Channel B).
- Adjust Red (R705), Green (R705) and Blue (R706) cut off controls to set pins 6, 8, and 11 of Picture Tube at 100 volts each.
- 7. Advance G2 control (R727) until screen just begins to illuminate.
- 8. If the electron guns of the CRT are balanced, you should get a dull gray raster. However, if one color is more predominant than the others, adjust the cutoff controls of other 2 corresponding guns as required to obtain a gray raster.

#### **Power Supply Adjustment**

- With the unit off, set the Volume Control (R316), Contrast Control (R585), and Brightness Control (R589) to minimum.
- Preset R114 to mechanical center.
- Connect a voltmeter across C494 and turn on the
- 4. Adjust R114 for a reading of 125V on the meter.

#### Horizontal Synchronization Adjustment

- Inject a cross-hatch pattern signal and short C434.
- Adjust the horizontal sync with R437...
- Remove the short from C434.

#### Vertical Synchronization Adjustment

- Inject a cross-hatch pattern signal and short C434.
- Adjust the vertical sync with R331.
- Remove the short C434.

#### Horizontal Amplitude and Centering Adjustment

- Inject a cross-hatch pattern signal and set the Brightness Control (R589) and Contrast Control (R585) to their mechanical centers.
- Adjust R485 so that 14 blocks correspond to a width of 26cm.

#### Vertical Amplitude and Centering Adjustment

- Inject a cross-hatch pattern and set the Brightness Control (R585) to their mechanical centers.
- Adjust R353 so that 10 blocks correspond to a height of 18.5cm.
- 3. Adjust R364 to center the display vertically.

#### **Chrominance Adjustment**

#### (Note: pin nos. in parenthesis indicate alternate 16-pin (C.)

- Inject a color bar pattern signal and adjust the secondary controls for normal viewing. Place SK3 (not used in CM8562, CM8762, 8CM542) in the off position.
- Connect an oscilloscope to pin 15 of IC502 and adjust S533 for minimum amplitude of the chrominance signal that is present on the various brightness steps of the luminance signal.
- Short pins 9 (3) and 17 (11) of IC501.
- Adjust C567 to minimize the chroma as visible on the screen.
- Remove the shorting clips from pins.

#### Comb Filter Adjustment

#### (CM8505/CM8705/8CM505/8CM515/8CM643) ONLY

- Inject a color bar pattern signal and place the Comb Filter Switch (SK3 in the on position).
- Connect an oscilloscope to the emitter of TS531 and adjust R523 and S515 for minimum amplitude of the chrominance signal. For optimum performance, repeat the adjustment.

#### **Focus Adjustment**

- Inject a cross-hatch pattern signal and set the Brightness Control (R589) to minimum and the Contrast control (R585) to maximum.
- Adjust R732 for optimum focus.

#### X-Ray Protection Circuit Adjustment

- Inject a color bar pattern signal and set the Brightness and Contrast Controls to minimum.
- Connect a voltmeter between the wiper of R457 and ground.
- Adjust R457 for a reading of 6.9V.

Note: The following adjustments need only be performed if the CRT has been replaced. Minor corrections for purity and convergence may be accomplished through the use of the Purity and Convergence Assembly located on the neck of the CRT.

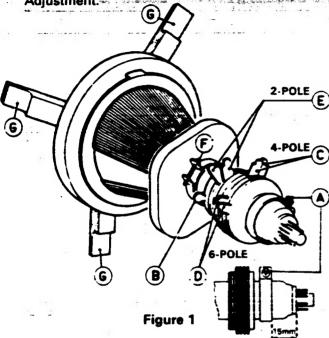
#### Color Purity Adjustment (Refer to Figure 1)

- Loosen the yoke clamp screw and slide the yoke back away from the rubber wedges.
- 2. Remove the rubber wedges (G) and slide the yoke forward until it rests firmly against the bell of the
- 3. Tighten the yoke clamp screw slightly so that the yoke can still be moved with some friction.
- Place the multi-pole Purity and Convergence Assembly in the position shown in Figure 1.
- 5. Tighten screw (A) and turn securing ring (B) counterclockwise. Position the unit so that it faces in an East/West direction and degauss the instrument.
- 6. Turn on the power and inject a cross-hatch pattern signal. Allow a 10 minute warm-up period.
- Roughly adjust the static convergence, using tabs C and D.
- Adjust R453 to center display horizontally.

  8. Set the Vertical Centering Control (R364) to its mechanical center. Disconnect R723 and R724 to turn off the green and blue guns.

#### **ADJUSTMENT PROCEDURES (Continued)**

- 9. Adjust the two-pole purity rings (E) to center the red vertical and horizontal lines.
- Inject a white pattern signal and move the deflection yoke to obtain a full red raster.
- 11. Turn on the green and blue guns by reconnecting R723 and R724. If a uniformly white raster does not appear, minor adjustments may be made by adjusting the purity rings (E).
- 12. Inject a cross-hatch pattern signal to ensure that the yoke is not tilted. If necessary, rotate the yoke to obtain a level raster.
- 13. Tighten screw F and adjust R364 for proper vertical centering. Proceed to the Static Convergence Adjustment.



Static Convergence Adjustment

- Inject a crosshatch pattern signal and allow a 10 minute warm-up period.
- 2. Turn off the green gun by disconnecting R723. Turn locking ring (B) counterclockwise.
- Slowly spread, and if necessary, rotate the 4-pole magnetic rings (C) to converge red and blue lines at the center of the screen.
- 4... Reconnect R723 to turn on the green gun and disconnect R724 to turn off the blue gun
- 5. Slowly spread, and if necessary, rotate the 6-pole magnetic rings (D) to converge the red and green lines at the center of the screen.
- 6. Reconnect R724 to turn on the blue gun.
- 7. For optimum performance, repeat steps 1 through
  6. Proceed to the Dynamic Convergence Adjust-

Dynamic Convergence Adjustment

- 1. Inject a cross-hatch pattern signal and turn off the green gun by disconnecting R723.
- 2. Tilt the yoke up and down to acheive the best convergence of the red and blue vertical lines at the 6 and 12 o'clock and the red and blue horizontal lines at the 3 and 9 o'clock positions (see Figure 2).
- 3. When the correct position has been found, place a rubber wedge between the CRT. If the yoke is tilted up, place wedge 1 as shown in Figure 3a; if it is tilted down, place wedge 1 as shown in Figure 4a.

  4. Tilt the yoke to the left and right to find the point of
- 4.—Tilt the yoke to the left and right to find the point of the red and blue lines

- at the edges, top, and bottom of the screen as shown in Figure 5.
- 5. When the correct position is located, place wedges 2 and 3 as shown in Figure 3b or 4b.
- Remove wedge 1 and place it in the final position as shown in Figure 3c or 4c. Reconnect resistor R723 to turn on the green gun.

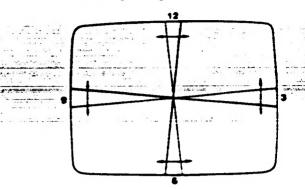


Figure 2 — Tilt yoke up or down to converge Red and Blue vertical lines at 6 and 12 o'clock positions, and Blue horizontal lines at 3 and 9 o'clock positions.

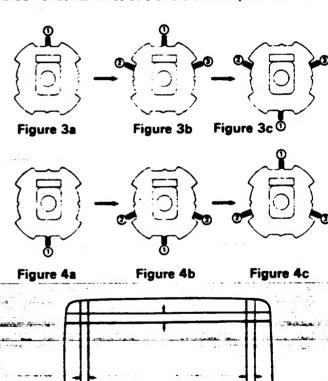


Figure 5 - Tilt yoke left or right to converge Red and Blue horizontal lines at the 6 and 12 o'clock positions, and Red and Blue vertical lines at the 3 and 9 o'clock positions.

Note: A computer delivering RGBTTL output (IBM or Apple) should be used to properly test the 'RGB circuitry. However, if a computer is not available, the following procedure may be used.

EXCEPTION: CM8562/CM8762/8CM542 does not accept Analog RGB or X-RGB signals.

#### ADJUSTMENT PROCEDURES (Continued

#### RGB INTERFACE P.C. BOARD CHECKS FOR ALL MODELS (Except CM8562/CM8762/8CM542)

Late Production RGB Interface models are IBM Compatible only after Feb. 87.

Early Production models accept Apple (X-RGB) or IBM (RGB-1) prior to Feb. 2, 1987.

The purpose of this board is to accept RGB TTL signal inputs (RGB—I or X-RGB) and develope the R, G, and B signals in the monitor. By grounding the control input (Pin 1 of 8 pin Din Plug) the interface circuit will decode X-RGB to equal RGB-I signals in the monitor.

#### Interface P.C. Board Check

1. If either Apple (X-RGB) or IBM (RGB-I) signals are available as a TTL input the interface operation in the other signal mode may be checked. By grounding the control input on each color the other mode will appear. Pins 2, 3, 4, and 5 the 8 Pin Din Jack are high level when open. Use the cross reference chart for this cross color check.

2. To confirm proper operation of the RGB Interface Board, refer to the following truth table and ground the pins as shown. A voltmeter may be used to determine whether the output levels are high (1) or low (0). (Refer to schematic for pin nos.).

3. Another quick check may be done using a sine or square wave generator. A 1 to 3 kHz square wave (2Vp-p) may be injected into the pins of the DIN jack . IBM/APPLE switching line. (open=IBM; ground=APPLE) in the truth table. Color flashes should be visible on the screen which correspond to the pin or pins connected to the signal generator. Pin 2 should give red flashes, pin 3 green flashes, etc. when in the IBM mode. The colors will vary when pin 1 is grounded along with any of the others because the Apple colors are not the same as the IBM colors.

#### IBM TRUTH TABLE

Г	1	<b>NFUT</b>	•			OUTPUTS										
	DIN	rue	PINS			IC272 PIN6								IC271 PINS		
6	4	3	(M) 2	i	1	2	3	4		•	7	•	11	13		
0	0	0	0	٦	0	•	0	0	0	•	•	0	0	0		
۰	٥	0	1	•	1	1	1	٥	8	0	0	٥	٥	٥		
٥	G	:	9	1	o	9	9	:	7	•	3	9	0	1		
٥	0	1	1	٠,	,	1	1	0	1	0	0	0	۰	1		
	1	0	0	,	0	0	0	0	0	•	1	1	,	0		
٥	١	0	1 ,	, 1	,	1	1	. 0	0	•	1	1	1	. 0		
0	1	1	0	. 1	0	0	0	1	•	•	•	•	•	1		
	1		•	•	1	•	- 1		. , ·	1	1	,	1			
1	0	0	0	1	0	•	0	0	0	0	· 0	•	•	•		
1	0	0	1	1	1	1	1	•	0	•	0			0		
١,	٥	•	٥	,	٥	٥	٥	F	1	1	0	0		1		
,	0	•	,	,	,	•	•			1	•	0	•	1.		
١,	•	0	0	,	۰	0	0	•	0	0	,	1	,	•		
,	1	0	1	,	1	1	1	0	0	0	1	1		0		
١,	1	1	0	1	۰	•	•	•	•	•	•	1	•	1		
•	1	1	•	1	,	1	1	1	1	1	1	1	,	1		

IBM is a registered trademark of International **Business Machines** 

#### APPLE TRUTH TABLE

00 (M) (M)	- Page-	7.		IC271		PUTS		erore Artis		Fine
6 % 4 m3/m2 m3	•	2	3	4	•	•	7	•	"	13
0 0 0 0 0 0 0 0 0	•	0	9	0	0	0	0	0	۰	0
0 0 0 -1 5	B	. 0	٥	1	. 0	. 0	1	. •	0	.0
001:200	0	1		.0	0	. 0	•		0	Ţ.
0 20 32 3 2		7.1	•	-	. 0		<b>= 1</b> .	4.7 <b>8</b>		ne t
A-L-0-0	0.	0	. 0			0	0	0	L	-
0 1 0 1 0	1	•		1	1	0	1		1	. 0
0 1 1 0 0	•	1	•	0	1	0	0	,		
o <u>a l'altri</u>	ş	. 1	•	• •	. •	0	- 4-			-1
1 0 0 0 8	0	0	,	0	0	1	0	0		. 0
1 0 0 1 0	1	0	7	1	•	1			0.	•
1 0 1 0 0	0	1	1		0	1	0	1	0	1
Anna O micking day O		3. · · · · · ·		···•	0-		-			- A-1
1 0 0 0	٥	0	:	0	4.97	T	6	0	7	
1 1 6 1 6	,	•		8	1	1	1	.0	1	•
1 1 1 0 0		1	1	. 0	1	1		1	,	•
, , , , ,	١,	,	,	,	,	,	1	,	١,	1

#### **RGB-TTL INPUTS (8 PIN DIN) Color Decoding Chart**

Levels shown are with monitor driven by computer.

		Pi	n		
APPLE X-RGB	5	4	3	2	IBM RGB-I
BLACK	0	0	0	0	BLACK
MAGENTA	0	0	0	1	RED
DARK BLUE	0	0	1	0	GREEN
PURPLE	0	0	1	1	BROWN
DARK GREEN	0	1	0	0	BLUE
GREY 1	0	1	0	1	MAGENTA
MIDDLE BLUE	. 0	1	1	0	CYAN
LIGHT BLUE	Ō	1	1	1	WHITE
BROWN	1	0	0	0	GREY
ORANGE	1	0	0	1	LIGHT RED
GREY 2	1	0	1	0	LIGHT GREEN
PINK	1	0	1	1	LIGHT YELLOW
GREEN	1	1	_	0	LIGHT BLUE
YELLOW	1	1	0	1	LIGHT MAGENTA
AQUA	1	1	1	0	LIGHT CYAN
WHITE	1	1	1	1	INTENSIFIED WHITE

Low (0) = Zero to .8 volts High (1) = 2.4 to 5 volts

Pin 1 is Apple/IBM Control Line Low (0) = Apple, High (1) = IBM Colors

Apple is a registered trademark of Apple Computers

#### **ADJUSTMENT PROCEDURES (Continued)**

#### **RGB 8 and 6 Pin DIN Sockets**

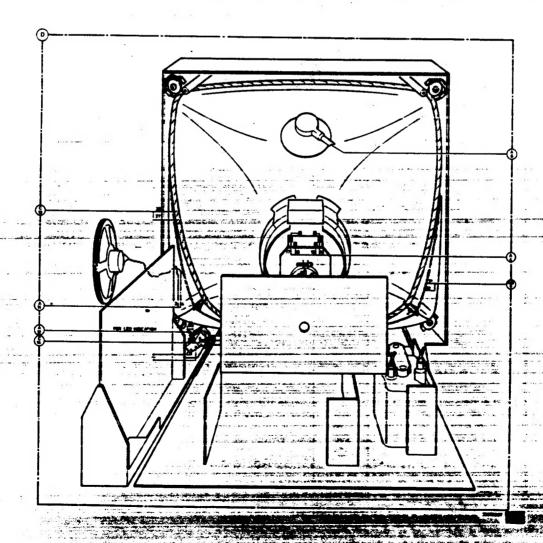
#### **PIN ASSIGNMENTS**

PII	N NO.	TTL INPUT 8 PIN SIGNAL	ANALOG 6 PIN SIGNAL	@ <sup>2</sup> 5
	*1	IBM Open/Apple Gnd.	Green	
	2	Red	Horiz. Sync	
	3	Green	Ground	TTL
	4	_ Blue	Red	INPUT
	. 5	Intensity	Blue	
	6	Ground	Vert. Sync	
	7	Horiz. Sync		( 2 ° 4 \
	8	Vert. Sync		
equi		hese sockets before connection to the RGB/Composite		*ANALOG INPUT

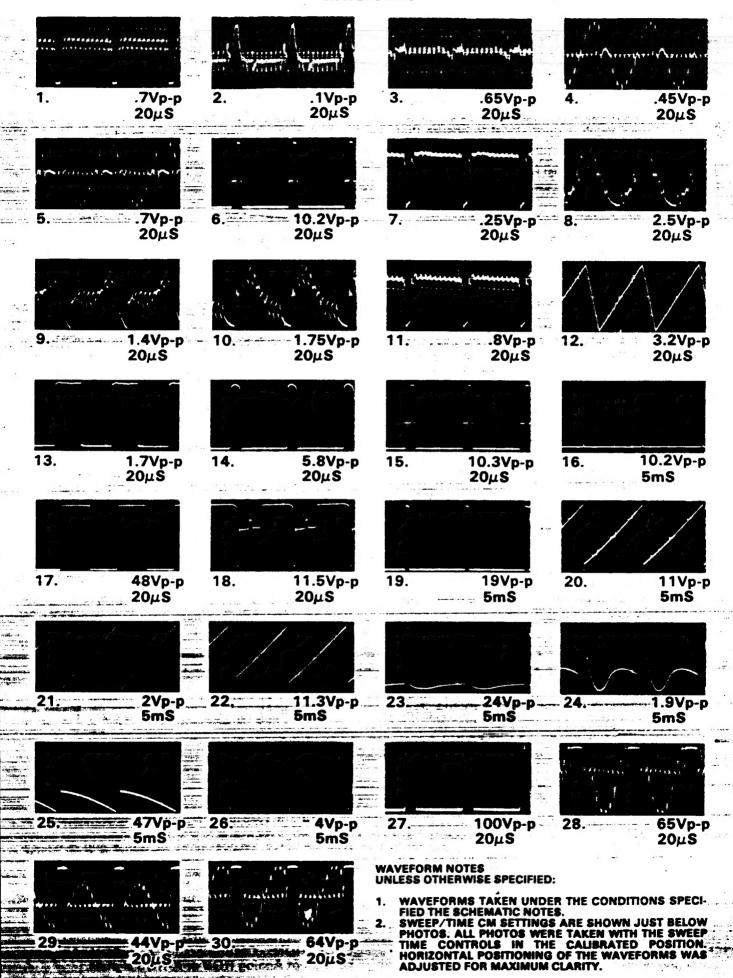
\*Not used in CM8562/CM8762/8CM542

#### **INTERCONNECT DIAGRAM**

Note: To Remove Power Board Depress Locking Clip Located on Bottom of Cabinet Beneath Power Board.

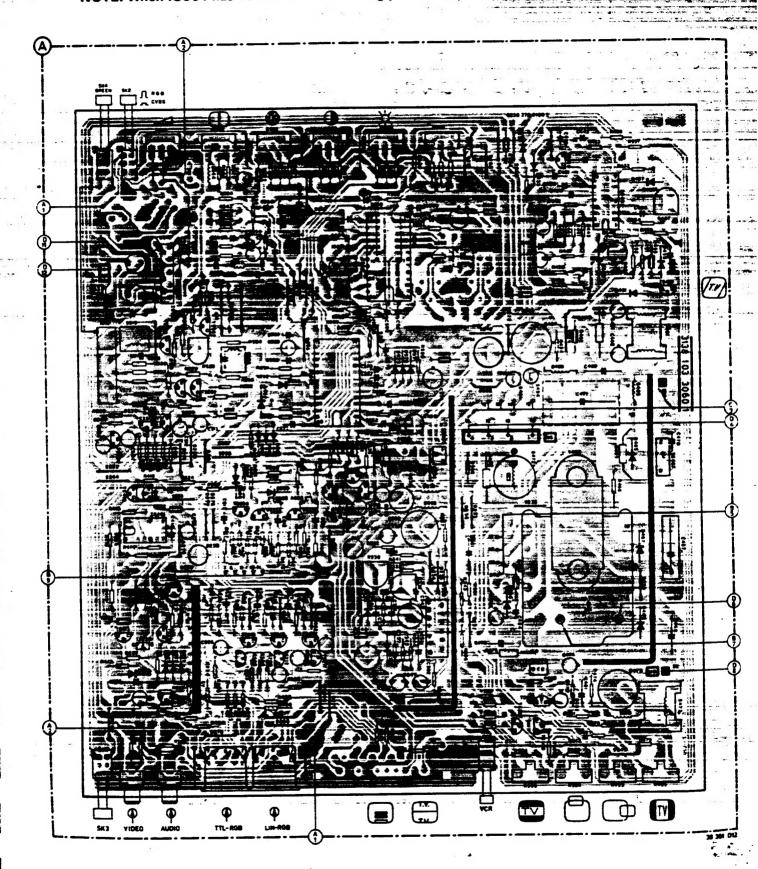


#### WAVEFORMS

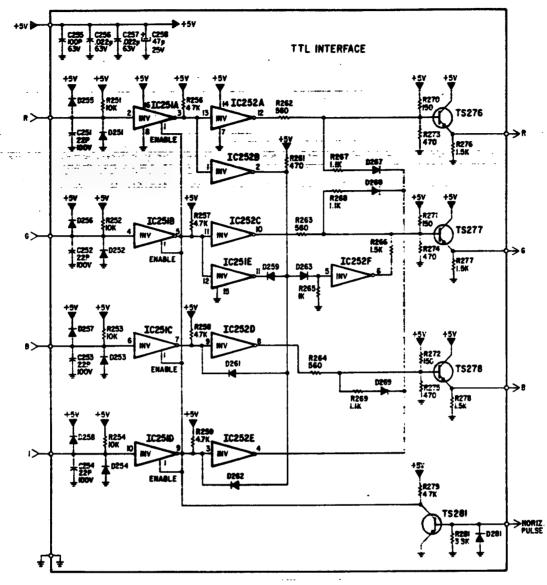


## 8CM505/8CM515/8CM643/CM8505/CM8705 MAIN P.C. BOARD (viewed from component side)

NOTE: When IC501 has 16 Pin IC the following parts are not used; R550, R559, R561 & C568



#### INTERFACE SCHEMATIC DIAGRAM (Late Production Version)



#### SCHEMATICS NOTES: UNLESS OTHERWISE SPECIFIED:

- ALL VOLTAGES AND WAVEFORMS TAKEN UNDER THE FOL-LOWING CONDITIONS:
  - LUNING CONDITIONS.

     LINE VOLTAGE MAINTAINED AT 120VAC, 60Hz VIA AN ISOLATION TRANSFORMER.

    CUSTOMER CONTROLS SET AS FOLLOWS:

     VOLUME CONTROL (R316) SET TO MINIMUM.

     COLOR CONTROL (R581) SET FOR 8.75VDC WIPER TO

  - GROUND.
  - CONTRAST CONTROL (R585) SET FOR 8.7VDC WIPER TO GROUND
  - BRIGHTNESS CONTROL (R589) SET FOR 5VDC WIPER TO
  - HUE CONTROL (R565) SET FOR 6VDC WIPER TO GROUND.
  - SK2 IN CVBS POSITION. ....
  - SK3, SK4 & SK5 OFF.
  - **E.P. REFERS TO EARLY PRODUCTION** L.P. REFERS TO LATE PRODUCTION

- VOLTAGES AND WAVEFORMS WERE TAKEN USING A 10 BAR GATED RAINBOW PATTERN SIGNAL SET TO DELIVER CHROMA BARS OF .5Vp-p AT THE VIDEO IN JACK.
- ALL VOLTAGES ARE POSITIVE DC WITH RESPECT TO GROUND, BE IT THE ISOLATED (SIGNAL) GROUND OR THE AC (HOT) GROUND WHICHEVER IS PRESENT IN THAT AREA OF

- VOLTAGES MAY VARY DUE TO NORMAL PRODUCTION TOL-ERENCES. VOLTAGE SOURCES ARE ALSO NOMINAL RESISTORS ARE ALL 5%, 'AW, CARBON FILM EXCEPT FOR SOME UNIQUE PARTS. REFER TO REPLACEMENT PARTS LIST. CAPACITOR VALUES ARE IN MICROFARADS & PICOFARADS. REFER TO SCHEMATIC DIAGRAM FOR VALUES AND VOLTAGES. AGES EXCEPT FOR UNIQUE PARTS SHOWN IN REPLACEMENT PARTS LIST.

#### WARNING

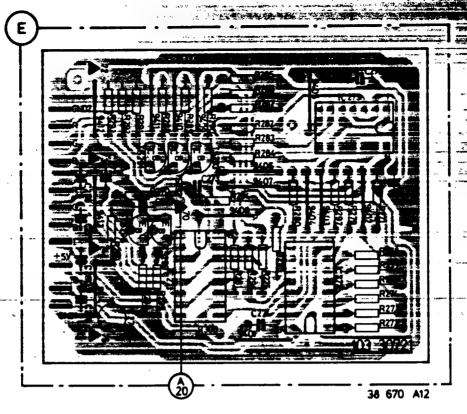
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bstitute replacement parts which do not have the same specified safety characteristics may create shock, fire,

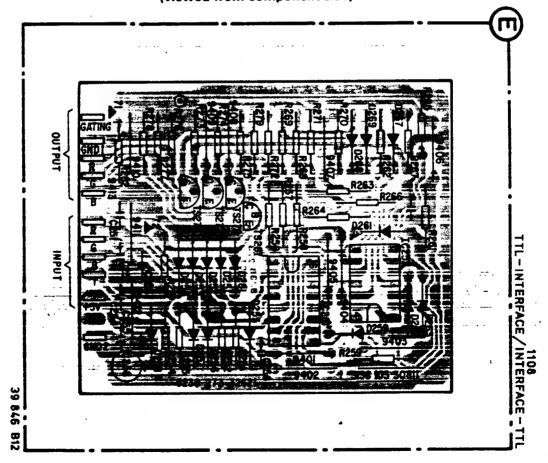
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Broken line:

8CM505/8CM515/8CM643/CM8505/CM8705 RGB INTERFACE P.C. BOARD (Early Production Version) (viewed from component side)



INTERFACE P.C. BOARD (Late Production Versions) (viewed from component side)



ICS NOTES THERWISE

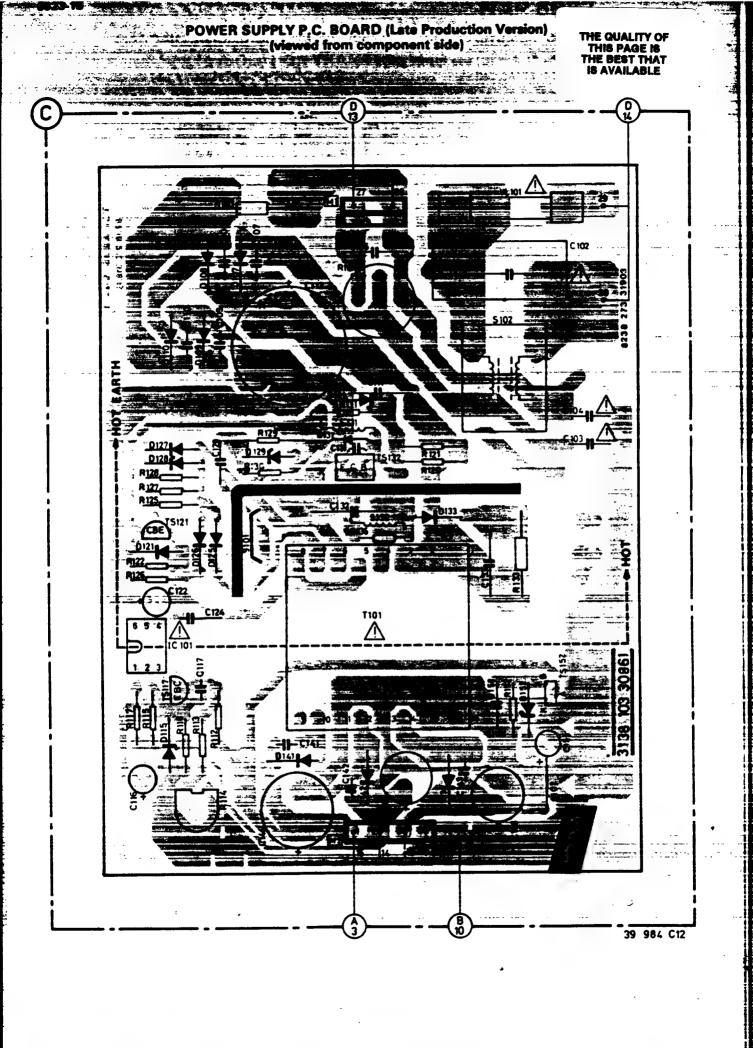
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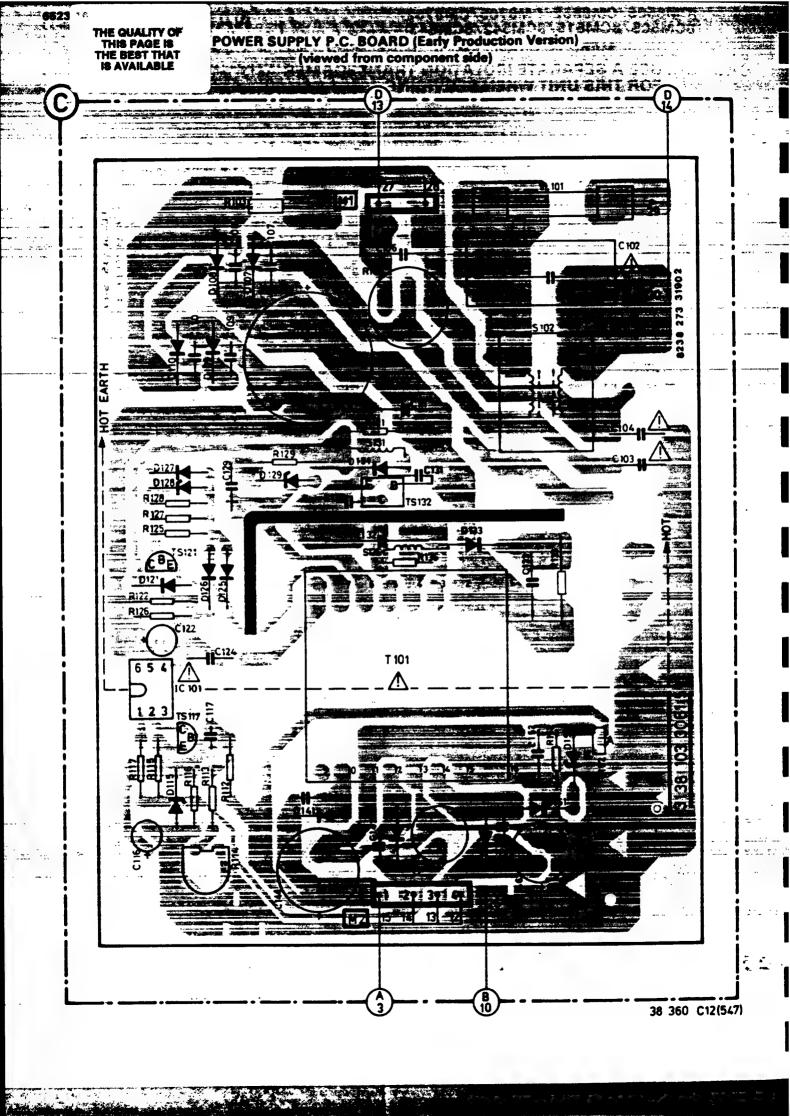
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bstitute r cified safe nazards.

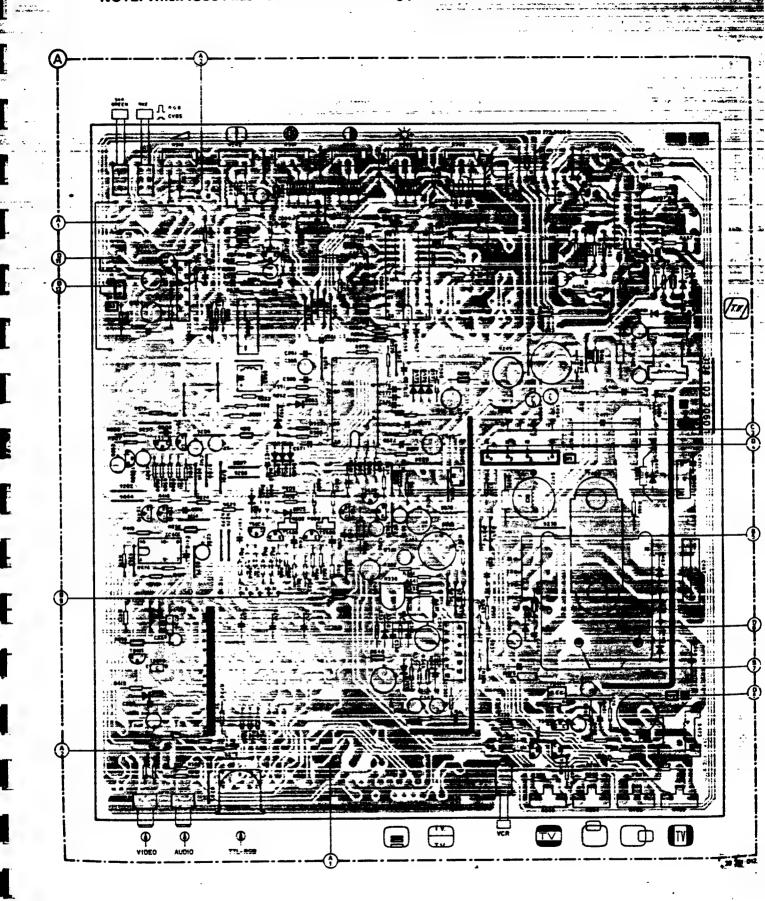


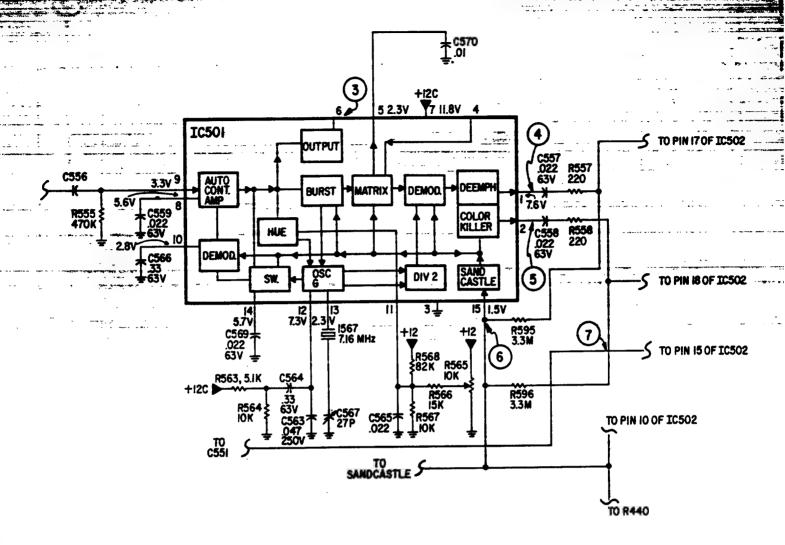


## 8CM542/CM8562/CM8762 MAIN P.C. BOARD (viewed from component side)

(viewed from component side)

NOTE: When IC501 has 16 Pin IC the following parts are not used; R550, R559, R561 & C568





**SCHEMATIC NOTES** LINLESS OTHERWISE SPECIFIED:

- ALL VOLTAGES AND WAVEFORMS TAKEN UNDER THE FOL-LOWING CONDITIONS:
  - LINE VOLTAGE MAINTAINED AT 120VAC, 60Hz VIA AN ISO-

- LATION TRANSFORMER.
  CUSTOMER CONTROL (R316) SET AS FOLLOWS
   VOLUME CONTROL (R316) SET TO MINIMUM.
   COLOR CONTROL (R581) SET FOR 8.75VDC WIPER TO GROUND
- CONTRAST CONTROL (R585) SET FOR 8.7VDC WIPER TO GROUND
- BRIGHTNESS CONTROL (R589) SET FOR 5VDC WIPER TO GROUND
- HUE CONTROL (R565) SET FOR 6VDC 'MIPER TO GROUND
- SK2 IN CVBS POSITION.
- SK3, SK4 & SK5 OFF.

E.P. REFERS TO EARLY PRODUCTION L.P. REFERS TO LATE PRODUCTION

VOLTAGES AND WAVEFORMS WERE TAKEN USING A 10 BAR GATED RAINBOW PATTERN SIGNAL SET TO DELIVER CHROMA BARS OF .5Vp-p AT THE VIDEO IN JACK.

we. .

- ALL VOLTAGES ARE POSITIVE DC WITH RESPECT TO GROUND.
  BE IT THE ISOLATED (SIGNAL) GROUND OR THE AC (HOT)
  GROUND WHICHEVER IS PRESENT IN THAT AREA OF
  CIRCUITRY.
- CIRCUITRY.

  VOLTAGES MAY VARY DUE TO NORMAL PRODUCTION TOLERENCES. VOLTAGE SOURCES ARE ALSO NOMINAL.

  RESISTORS ARE ALL 5%, 1/4W. CARBON FILM EXCEPT FOR
  SOME UNIQUE PARTS. REFER TO REPLACEMENT PARTS LIST.
- CAPACITOR VALUES ARE IN MICROFARADS & PICOFARADS. REFER TO SCHEMATIC DIAGRAM FOR VALUES AND VOLTAGES EXCEPT FOR UNIQUE PARTS SHOWN IN REPLACEMENT

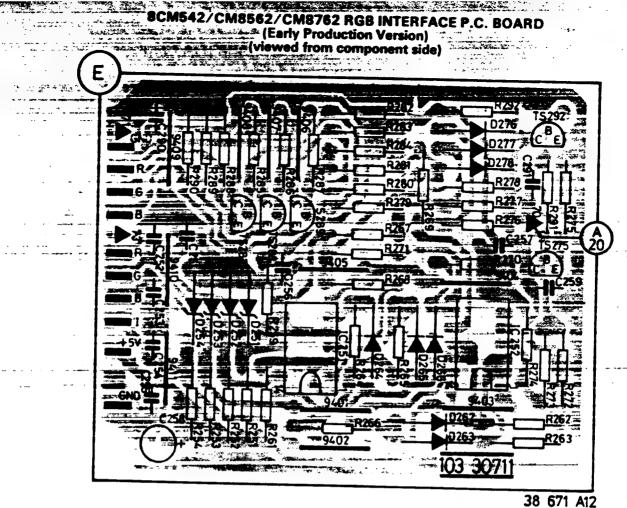
#### WARNING

Critical components having special safety characteristics are identified with an S by the Ref. No. in the parts list and enclosed within a broken line\* along with the safety symbol A on the schematics or exploded views.

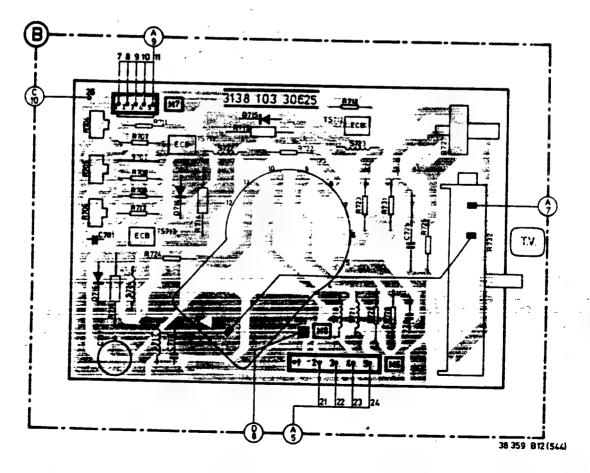
Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from the N.A.P. Consumer Electronics Corp. NAPCEC assumes no liability, express or implied, arising out of any unauthorized modified. tion of design. Servicer assumes all liability.

\* Broken line:



CRT P.C. BOARD (viewed from component side)



MATIC NOTES S OTHERWIS

5.6V

2.87

R555 \$

LL VOLTAGE
DWING CONE
LINE VOLTAGE
ATION TRANS
USTOMER COP
VOLUME COP
COLOR CON
GROUND.
CONTRAST (
GROUND.
BRIGHTNESS
GROUND.

GROUND. HUE CONTRC K2 IN CVBS K3, SK4 & S

REFERS TO

I compone ntified with Id within a the schema

substitute pecified sat r hazards.

#### ELECTRICAL REPLACEMENT PARTS LIST

#### TO ENSURE OPTIMUM PERFORMANCE AND RELIABILITY ALWAYS USE GENUINE FACTORY REPLACEMENT PARTS

(Schem. - Pgs. 11, 12, 13/19, 20, 21)

IN THE BUSINESS HE INC.

#### WARNING

Critical components having special safety characteristics are identified with an S by the Ref. No. in the parts list and enclosed within a broken line\* along with the safety symbol Consumer Electronics Corp. NAPCEC assumes no liability. A on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modi fied or altered without written permission from the N.A.P. express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

\* Broken line: ,

#### CM8505/CM8562/CM8705/CM8762/8CM505/8CM643/8CM515/8CM542 REPLACEMENT PARTS LIST

	Ref.		Description	Part No.		Ref. :	: .	Description	Part No.	
	COILS &	TRA	INSFORMERS		P	RESISTOR	86			
1 8	S \$102		1: 01 1	3693400001				vise specified all are Est store on	F:1 =	
£ 8	S S104		Degaussing Coil	3693100005	1,	C718		wise specified, all are 5%, ¼W, Metal .01uF., 500V, Ceramic		lant)
•	S131		Degaussing Coil 1 10uH Coil 2uH, Coil (L.P.) Deflection Yoke 7.5uH Coil Coil	3618271360	s	S R103				
٤ -	S136 S S348		zuri, Coll (L.P.)	5699000032				Dual PTC	Z4U1440096	
, 2	\$ 5348 \$465	٠.	7 Sulf Call	Part of CRT	_	R121	****	390k. Carbon Film	9011040035	
Ę.	5405 S472		7.5uM Coil Coil	3290000013	,	B122		2.2 ohm, 7W, Wire Wound Dual PTC 390k, Carbon Film 22k, 2W, Metal Film 4.7 ohm	230102222	
£		•	- 720uH Coil	3618271363		R232 -		-4.7 ohm	######################################	 100-1
	S474		Coil	3518271362		B225		15 ohm	23026R1EGE	
ŧ	\$491	- 1000 - 11	100uH Coil	3618271364	'S	R324	<b>-</b>		2302684785	and
•	<b>S493</b>	-	Coil	3618271361 3618271358	S	R346		4.7 ohm	2202604706	-
•	<b>S494</b>		100uH Coil	7610771761		R433	*	3.3K	2302823325	. سي
	S515		3.58MHz Coil (CM8505/CM8705)	3618271240		R443	-	5.2 Ohm		
	A		8UM505/8CM515/8CM643)			R455 R458		100 ohm	2302681015	•
•	S533		3.58MHz Coil	3618271342		R458 R461		10k 1k, 2W, Metal Film	2302821035	
•	S534		Delay Line	1606770123		R462			2394061025	
	S536 S544		39uH Coil	3618271367	_	R465				
	S544 S555		6.8uH Coil	3618271377		R469		3.3 ohm, 2W, Metal Film 12 ohm, 5W, Wire Wound 1k, 2W, Metal Film 5.6 ohm	2394063395	
	S555 S601		27uH Coil	<b>361827</b> 1379		R472		1k, 2W. Metal Film	2401440102	
	S601 S602		2.2uH Coil 2.2uH Coil	3618271378	S	R474		5.6 ohm	2394061025 2302685685	
•	S603		2.2uH Coil 2.2uH Coil	3618271378		R475		5.6 ohm 15k, 2W, Metal Film 1.5 ohm 8.2 ohm 4.7 ohm	2302685685 2302861027	
	S638		2.20H Coil 120uH Coil	3618271378	_	R484		1.5 ohm	2302861027 2302861585	
	\$717		8.2uH Coil			R512		8.2 ohm	2302688285	
	S718		10uH Coil	3618271366 3618271360	S	R537		4.7 011111	2302684785	
	S721		10uH Coil	3618271360 3618271360	_	R562		4.7 ohm	2302684785	
	<b>S722</b>		4.7uH Coil	3618271360 3618271359	S	R574		4.7 ohm	2302684785	
	S723		4.7uH Coil	3618271359 3618271359	•	R636 R642		680 ohm, 2W, Metal Film	2394066815	
_	S724		4.7uH Coit	3618271359	3			8.2 ohm	2302688285	
S	T101		Transformer	3090200003		R714 R715		3.9k, 3W, Metal Film 3.9k, 3W, Metal Film 3.9k, 3W, Metal Film	2302861028	
_	T401		Horizontal Drive Transformer	3293000001		R715 R716		3.3K, 3VV, Wetal Film	2302861028	٠
S	T402		Output Transformer	3291000006		R716		1M. WW. Corbon Co.	2302861028	
	1515		Delay Line (CM8505/CM8705/	1606770121		R722		1M, ½W, Carbon Composition	2394041055	
			8CM505/(CM515)	<del></del>		R723		470 ohm, ½W, Carbon Composition 470 ohm, ½W, Carbon Composition	m 2302124715	
C.	APACITO	)pe				R724		4/U 0hm, ½W, Carbon Composition	m 2202124715	
Š	C102			90000		R725		330K, 72W, Carbon Composition	2202122242	
S	C103		.22uF., 125VAC, Polyester Film .0047uF., 125VAC, Ceramic	2602320550		R728		1.5k, 1/2W, Carbon Composition	2302123342 2302641525	
S	C104		.0047uF., 125VAC, Ceramic .0047uF., 125VAC, Ceramic	2602320532		R731		1.5k, ½W, Carbon Composition	2302641525 2302641525	
S	C106			2602320532 2506564739	^-	MITTO				
S	C107		.0022uF., 1kV, Ceramic	2506564739 2509041035	Ü	CET-	.5 &	SWITCHES	•	
S	C108		.0022uF., 1kV. Ceramic	2509041035 2509041035		C567 R114		Trimmer Capacitor, 27pF.	2602320548	
S	C109		.0022uF., 1kV. Ceramic	2509041035 2509041035		R114 R316		Trimpot, 1k	2291010058	i
S	C110		.0022uF., 1kV. Ceramic	2509041025		R331		Volume Control, 100k	2204290729	į
S	C111		.22uF., 250V. Polvester Film (LP )	2506552249		R338		Vertical Frequency Control, 47k Vertical Linearity Control, 100k	2291010053	
	C112		220UP., 50V. Electrolytic	2509040485		R353		Vertical Linearity Control, 100k Vertical Size Control, 220k	2291010060	
	C132		.0047uF., 630V, Polyester Film	2509040712		R364		Vertical Centering Control, 10k	2204290761	
	C136	•	470pF., 2KV (E.P.)	2602320547		R437		Horizontal Frequency Control 22k	2291010086	
	C141 C142	•	220pF., 500V, Ceramic	2602320546		R453		Horizontal Centering Control, 10k	229101000	
	C142 C143	2	220pf., 500V, Ceramic	2602320546	1	R457		Trimpot, 22k (E.P.)	2291010086 2204692232	-, }
	C443	4	ZZUPP., SUUV, Ceramic	· <b>2602320546</b> ·-		RAST		Trimpot, 47k (L.P.)	2204692232 2302124732	. 1
S	C467	'	.022uF., 50V	2602320529		R485		Horizontal Size Control, 10k	2291010086	
S	C468	•	.0082uF., 1.5kV, Polyester Film	2602320549	1	R496	1	Pin Cushion, 4.7k (SCM643)	2291010052	. !
S	C470	4		2602320597	,	R523	-	Trimpot, 330 ohm (CM8505/	2204290732	1
	C471			2602320547 2602320561				CM8705/8CM515/8CM515/		ļ
			(8CM515/CM8562/8CM643)	2602320551		DEA-		8CM643)		ł
	C471	.1	.58uF., 10%, 250V. Polyester Film	2509040718		R542 R565		Sharpness Control, 500 ohm	2204290727	- 1
			(CM8505/CM8705/8CM505)			R565 R581	•	Trimpot, 10k	2204290728	I
	C473	4	4.7uF., 50V, Bipolar	2701740675		R581 R585		Color Control, 10k	2204290728	1
	C508	5	56pF., 2%, 100V. Ceramic	2/01/406/5 2602320544		R585 R589		Contrast Control, 10k	2204290728	i
			(CM8505/CM8705/8CM505/			R598		Brightness Control, 10k	2204290728	;l
	CE		8CM515/8CM643)			R <b>6</b> 05	•	Sub Brightness, 10k (8CM643) Trimpot, 1k	2203011032	4
	C535 C554	1	120pF., 50V, Ceramic	2602320552		R606	•	Trimpot, 1k Trimpot, 1k	2204290725	Ī
	C554 C555	3	39PF., 5%, 50%, Ceramic	2509041033	F	R704	1	Trimpot, 4.7k	2204290725	- 1
. 1	C555	4		2509041032		R705	١	Trimpot, 4.7k	2291010052	i
						. <del>-</del>			2291010052	į
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क्र <b>ाधक</b> ्		200 A			_		-	AND THE PARTY OF T	
CO	MTROL	22	SWITCHES (Continued)			SEMICO	DNDUCTORS	(Continued)	
				4440040338		70504			
			Trimpot, 4.7k	4H10010236	•	18631		con (CM8505/CM8706/	6103700001
				2204290726				5/8CM515/8CM643)	
		ini#6	Focus Control, 59M	2204290730		T8544		CON	6103700001
	<b>SK1</b>		Power Switch	1606780548		TS552		icon (CM8505/CM8705/	6103/00001
4	8K2			1606780549				5/8CM515/8CM643) -	
	SK3		Comb Filter Switch (CM8505/	1606780549		TS604		icon (CM8505/CM8705/	5103700001
			CM8705/8CM505/8CM515)				8CM50		
- 11 7	SK4		Green Switch	1606780549	•	TS604		icon (8CM515/CM8562/	4H13041594 **
	SK5	Name of the last	VCR Switch	1606780549			CM875	2/8CM542)	
			27086			TS605		icon (CM8505/CM8705/	6103700001
	MICON	<b>IDU</b>		F202440004			8CM50		
3	IC101	:	Optic Coupler IC Inverter IC (CM8562)	5303110001		TS605		icon (8CM515/CM8562/	
	IC251			6193100140 6193100140			CM876	2/8CM542)	
	IC252		Inverter IC (CM8562) Inverter IC (CM8505/CM8705/	6121970001	•	TS606	- NPN, Sil	icon (CM8505/C8705/	6103700001 =
-	H-2/1		8CM505/8CM515/8CM643)	_ <b>0</b> 1213/0001	-		SCM50	6)	
	10070	THE PERSON OF	Decoder/Matrix IC	6193100070	·	TS606	MPN, 5/	icon (8CM515/CM8562/	4H13041594
·	, 142/2	7	(CM8505/CM8705/8CM505/	8133100070			CM876	2/8CM542)	
						TS633		icon	6104350002
	IC273		- 8CM515/8CM643) - AND Gate JC (CM8505/8CM505/	6121000001		TS635	NPN, Sil	icon	6105270002
_	104/3		8CM515/8CM643)	J 12 133000 1		TS641	NPN, Sil	icon	6103720002
****	IC301		Audio Amp IC	6192001060		TS711			#104390001 ···
	IC301		Vertical Signal Processor IC	6123300289		T\$712	NPN, Sil		6104390001
	IC401		Exclusive OR Gate IC	6122890001		_TS713		COR	. 6104390001
	IC402		Horizontal Signal Processor IC	6123300330		D107	Diode		5391200341
	IC403		Voltage Stabilizer IC	6192140331		D108	Diode		5391200341
	*IC501		Video Processor IC (28 Pin)	6123300332		D109_	Diode		5391200341
	IC501			6123300374		D110	Diode		5391200341
<b></b> . , .	IC501	27 🅦	Video Processor/Video Amp IC	6192080240	1 - 55	D111	Diode (L		~5302250240 ±
	TS117	,	NPN, Silicon	6105000004		D115	Zener Di		5301570629
	TS121		NDN Cilicon	6190004040		D121	Diode	-	5301811002
	TS132		NPN, Silicon	6190002200		D125	Diode		5301811002
-	TS152		Thyristor	6191400010		D126	Diode		5301811001 "
	TS211		NPN, Silicon (CM8505/CM8705/			D127	Diode		5301811001 4H13030862
	10211		8CM505/8CM515/8CM643)	0.00.000.		D128	Zener Di		4H13031253
	TS212	•	NPN, Silicon (CM8505/CM8705/	6103700001		D129		ode, 2.4V	
		•	8CM505/8CM515/8CM643)			D131	Diode		5301811002
	TS213	t	NPN, Silicon (CM8505/CM8705/	6103700001		D133	Diode		4H13031393
	102.0	•	8CM505/8CM515/8CM643)	0.007.0000		D141	Diode		4H13032833
	TS217	,	NPN, Silicon (CM8505/CM8705/	6103700001		D142 D143	Diode Diode		4H13031607 5H13031971
			8CM505/8CM515/8CM643)	************		_ : : -	Diode		5302681002
	TS218	ì	NPN, Silicon (CM8505/CM8705/	6103700001		D151	Diode		4H13031024
	.02.0		8CM505/8CM515/8CM643)			D152 D221		:M8505/CM8705/	5301811002
	TS219	)	NPN, Silicon (CM8505/CM8705/	6103700001		UZZI		.masos/Cma/os/ 15/8CM515/8CM643)	330 18 1 1002
	.02.0		8CM505/8CM515/8CM643)			D222		· · · · · · · · · · · · · · · · · · ·	5301811002
	TS228	R .	NPN, Silicon (CM8505/CM8705/	6103700001		UZZZ		:M8505/CM8705/ 05/8CM515/8CM643)	530 16 1 1002
			8CM505/8CM515/8CM643)	•		D223			5301811002
	TS233	t	PNP, Silicon (CM8505/CM8705/	6190101480		UZZS		:M8505/CM8705/ 05/8CM515/8CM643)	3301011002
			8CM505/8CM515/8CM643)	• • • • • • • • • • • • • • • • • • • •		D234	Zener Di		4H13034167
	TS235		NPN, Silicon	6190004860		D262		:M8562/CM8762/	5801811002
	TS275		NPN, Silicon (CM8562/CM8762/	6104350002		0202	8CM54		3001011002
			8CM542)			D263		M8562/CM8762/	5801811002
	TS287	7	NPN, Silicon (CM8562/CM8762/	6103700001		D203	8CM54		3001011002
			8CM542)			D264		:M8562/CM8762/	5801811002
	TS288	3	NPN, Silicon (CM8562/CM8762/	6103700001			8CM54		3001011006
			8CM542)			D265	Dieve (C	:M8562/CM8762/	5801811002
	TS289	)	NPN, Silicon (CM8562/CM8762/	6103700001		J203	8CM54		300.01.002
			8CM542)			D266		M8562/CM8762/	5801811002
	TS291	l	NPN, Silicon (CM8505/CM8705/	6103700001		2200	8CM54		
			8CM505/8CM515/8CM643)			D276		M8562/CM8762/	5801811002
	TS292	2	NPN, Silicon (CM8505/CM8705/	6104350002		•	8CM54		
			8CM505/8CM515/8CM643)			D277		M8562/CM8762/	5801811002
	TS293	3	NPN, Silicon (CM8505/CM8705/	6103700001			8CM54		
		_	8CM505/8CM515/8CM643)			D278		M8562/CM8762/	5801811002
	TS298	3	NPN, Silicon (CM8505/CM8705/	6103700001			8CM54		
			8CM505/8CM515/8CM643)			D325	Green Li		5392100470
	TS299	•	NPN, Silicon (CM8505/CM8705/	6104350002		D333	Diode		5301811002
-			8CM505/8CM515/8CM643).		-	D337	Diode	The second secon	5301811002
	TS367	7	PNP, Silicon	6190101480		D346	Diode		5301711002
	TS368	5 %	NPN. Secon	6103680002		D412	···· Diode	ode, 4.7V	5301811002
	TS406		NPN, Silicon (CM8505/CM8705/		AND SUPPLY			ode, 4.7V	5390150479
			8CM505/8CM515/8CM643)	6104250002	1	D433	Diode	**	5301811002
-	TS413		NPN, Silicon	£10370002		D455	Diode	The same of the sa	5302661002
	TS418		NPN, Silicon	6103700001	:	D457	Diode		5301811002
	TS419		NPN, Silicon	6103700001		D461	Diode	· · · · · · · · · · · · · · · · · · ·	4H13031607
<b>.</b>	TS439		NPN, Silicon NPN, Silicon NPN, Silicon NPN, Silicon NPN, Silicon	6104350002	•	D465	Diode		4H13031607
- ^-	1070		NON Ciliaan	6105350003		D467	Dioge	•	5302591001
	TS467		NPN, Silicon	6104330001		D468	Diode		5302601002
	T\$474		PNP, Silicon NPN, Silicon	6104380001 6104350002					•
	T\$478		NPN, Silicon NPN, Silicon	6103700001					***
	TS508		NPN, Silicon NPN, Silicon	6104350002			4		
	TS514		NPN, Silicon NPN, Silicon	6103700001			•		• ♥-
	TS517		NPN, Silicon (CM8505/CM8705/						
	1351	•	8CM505/8CM515/8CM643)	0.00700001					
	TS518	R	NPN, Silicon (CM8505/CM8705/	6103700001					
		_	8CM505/8CM515/8CM643)	J. JJ. JUUU I					•
			Democracing (avacing 19)						

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		Description		art No. 5	Tel.	Descript	on	POLITO.
A A CORNER OF THE PERSON NAMED IN	Harmer	Company of the American American	rus men, roma seeds ∰orest in	-	**************************************			e - has rightly and a
Bar Land	_					MISCEL	ion LANEOUS (Continued) Foot, 4 used (CM8505/ 2) Foot, 4 used (8CM505/	ارتها کا آهاد که شکل د همکار وادرونان درون درون همکار هم کا درونان درون درون
22 THE S.	EMICONE	OUCTORS (Continued)				Control of the contro		1491030002
-	404 73	Diode To the second		391500450		Cabinet	Poot, 4 used (CM8505/	1731030002
	107	Diede -	5	301811002	The second second	CMU50	(2)	
	9/1	Diode	5	301811002		Cabinet	Foot, 4 used (8CM505/	1491030003
District Dis		Diode		301811002	ASSESSMENT OF THE PARTY OF THE		5/8CM643) djustment (8CM542)	
		Diode	5	301811002	APP AND THE ME	THE COVER A	djustment (8CM542)	1491320214
	592	D1006		301811002		Reconda	ry Control Door (CM8505)	1492180011
	<b>593</b>	Diode		301811002		Seconda	ry Control Door (8CM505)	1492180010
" ". D		Diode	` -	201011002		Seconda	ry Control Door (8CM515	/ 1492180012
D	<b>601</b>	Diode		301811002		001161	191	
D	602	Diode		30 18 1 1002		Seconds	cy Control Door (CM8562)	1492180018
. , 🚅 D	603 :	Diode	D	301811002	and the second second second	Total Mar	CMSSOS/CMSSS2\	1591060003
D	604	Diode	5	301811002		Tent Plan	te (CM8505/CM8562) te (SCM505/8CM515)	1591060004
D	605	Diode		301811002		7 TOTAL PIE	Pushbutton Knob	1494200066
D		Diode	<b>5</b>	302681002		UN/UII	Pushbulton Nilou	1-10-E00000
D		Diode	<u></u>	302681002	The second of th	- Japan - (CM80	08/CM8/08)	- 1494200074
	716	Diode	5	302681002			PUSNOULIDIN KINDD	, 1434200074
	,			The second second		(SCM5	05/8CM515/8CM643) Pushbutton Knob	1494200074
MIC	CELLANE	OUS		-		· ~ ~ · · On/Off	Pushbutton Knob	. 14342000/4
SL		Fuse, 3A	. 1	813900214	The second secon	(CM85	62/CM8762/8CM542)	
S		Fuse, 3A Fuse Holder (2 used)	1	035300932		Pushbut	ton Knob (VCR SW.,	1494200067
		- CRT w/Deflection Yok		34EAJOOX		Comb	Defeat (2 used)	
S-B	100	(CM8505/CM8705)				Pushbut	ton Knob (RGB/CVBS,	1494200068
		CRT w/Deflection Yok	- (OCMEDE)	134EA 110Y	•	Green	(2 used)	
S B		CRT w/Deflection Yok	= (0CM505) /	434EA000Y		High Vo	itage Cable (CM8505/	4613990214
SB				134EAQUUA 2971 <b>8</b> 55		CM87	05/8CM505/8CM515/	••
S 8	100	CRT w/Deflection Yok	• . t	23/1000	-	8CM6		•
F		(8CM542/8CM643)			AND THE PERSON NAMED IN		Itage Cable (CM8562/	_4613990221
5 B		CRT w/Deflection Yok	S. T. S.	M34EAQTUX	Anna and a second second second	CM87	62/8CM542)	21 20 100mm
120 11 2 2	ologia and and and and and and and and and an	(CM8562/CM8762)		taring and section	THE REST CONTRACTOR OF THE	Focus C		4613990213
. s		CRT Socket	1	892250011			Extender Rod (4 used)	1191000039
S	323	Speaker	5	1808350051	· mage, or my may may me	Control	Manual (CM8505)	1847290001
	567	Crystal	5	699000028				1847540001
•		RCA Jack (2 used)		813930160			Manuel (8CM505)	1847550001
		6 Pin DIN Socket (CM8	505/ 1	814521073			Manual (8CM515)	1850090001
		CM8705/8CM505/8	CM515/	•			s Manual (8CM643)	
		8CM643)				Owner's	s Manual (CM8705)	IB53160001
		8 Pin DIN Socket	1	814521072		Owner's	s Manual (CM8762)	- IB53150001
		Cabinet (CM8505)		492100002			s Manual (CM8562)	1848180001
				492100003		Owner'	s Manual (8CM542)	IB52560001
		Cabinet (8CM505)		492100004				
		Cabinet (8CM515, 8CA						
		Cabinet (8CM542)		492900004				
		Cabinet (CM8562)	1	492100005				
•								

### COMMODORE STOCKED PARTS — 1084P

CBM PART NUMBER	· DESCRIPTION	LOCATION	PHILIPS OEM NUMBER
314890-01	SERVICE MANUAL 1084		
314851-01	CABLE 1084 (6 to 23)		
610200-11	LINE CHOKE	S102	3693400001
610200-12	DEGAUSSING COIL	S104	3693100005
610200-13	DEFLECTION YOKE (PART OF CRT)	S348	-
610200-14	TRANSFORMER	T101	3090200003
610200-15	HORZ DRIVE TRANSFORMER	T401	3293000001
610200-16	OUTPUT TRANSFORMER	T402	3291000006
610200-17	CAP .0082 μF, 1.5KV POLY FILM	C467	2602320549
610200-18	CAP .022 µF, 400V POLYPROP	C468	2602320597
610200-19	DUAL PTC	R104	4H11640035
610200-20	FOCUS CONTROL, 59M	R732	2204290730
610200-21	POWER SWITCH	SK1	1606780548
610200-22	IC OPTIC COUPLER	IC101	5303110001
610200-23	IC AUDIO AMP	IC301	6123300289
610200-24	IC VERT SIGNAL PROCESSOR	IC302	6123300289
610200-25	IC HORZ SIGNAL PROCESSOR	IC402	6123300330
610200-26	IC VIDEO PROCESSOR (28 PIN)	IC501	6123300332
610200-27	IC VIDEO AMP	IC502	6192080240
610200-28	TRANSISTOR NPN TS461	TS461	6105350003
610200-29	TRANSISTOR NPN TS467	TS467	6104330001
610200-30	TRANSISTOR NPN TS711, 712, 713	TS711	6104390001
610200-31	DIODE D107, 108, 109, 110	D107	5391200341
610200-32	CRT WITH DEFLECTION YOKE	B100	M34EAQ10X
610200-33	CRT SOCKET	—	1892250011
610200-34	CABINET (CM8562)	_	1492100005
610200-35	CONTROL PANEL DOOR		1492180018

#### NAPCEC SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

#### Safety Checks

After the original service problem has been corrected, a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition, which could be unknowingly passed on to your customer. Be sure to check all of the following:

#### Fire and Shock Hazard

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- Be sure all components are positioned in such as way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
- Never release a repaired receiver unless all protective devices such as insulators, berriers, covers, strain reliefs, and other hardware have on installed according to the original design.
- Soldering and wiring must be inspected to locate possible cold solder joints, solder splashes, sharp solder points, frayed leads, pinched leads, or damaged insulation (including ac cord). Be certain to remove loose solder bells and all other loose foreign particles.
- Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length and dress.
- No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
- Critical components having special safety characteristics are identified with an S by the Ref. No. in the parts list and enclosed within a broken line' along with the safety symbol on the schematics. Replacement parts without the same safety characteristics may create shock, fire or other hazards.
- When servicing any receiver, always use a separate isolation transformer for the chassis. Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicino instruments.
- Many receivers use a polarized line cord (one wide pin on the plug). Defeating this safety device may create a potential hazard to the servicer and the user. Extension cords which do not incorporate the polarizing feature should never be used.
- After re-assembly of the set, always perform an ac leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also, check all metal control shafts (with knobs removed), antenna terminals, handles, screws, etc. to be sure the set is safe to operate without danger of electrical shock.

\* Broken line: -

#### Implosion

- All picture tubes used in current model receivers are equipped with an integral implosion system.
  - Care should always be used, and safety glasses worn, whenever handling any picture tube. Avoid scratching or otherwise damaging the picture tube during installation.
- Use only replacement tubes as specified by the manufacturer.

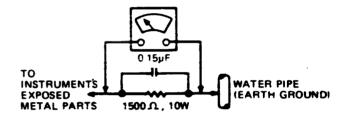
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- Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receives are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the HV at the factory reco level.
- To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
- It is essential that the service technician has available at all times an accurate HV meter. The calibration of this meter should be checked periodically against a reference standard.
- When the HV circuitry is operating properly there is no possib X-radiation problem. High voltage should always be kept at the manufacturer's rated value — no higher — for optimum performance. Every time a color set is serviced, the brightness should be run up and dow while monitoring the HV with a meter to be certain that the HV does not exceed the specified value and that it is regulated correctly:
  - We suggest that you and your service technicisms review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine be clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV reading be recorded on each mers' invoice, which will demonstrate a proper concern for the mers' selety
- When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by

- means of a Variac to bring the HV into acceptable limits while trouble shooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
- New type picture tubes are specifically designed to withstand higher operating voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types, as this may result in excessive X-radiation.
- It is essential to use the specified picture tube to avoid a possible X-radiation problem.
- Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These verious circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

#### Leakage Current Cold Check

- Unplug the ac line cord and connect a jumper between the two prongs of the plug.
- Turn on the power switch.
- Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm as megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac



#### Leakage Current Hot Check

- Do not use an isolation transformer for this test. Plug the completely re-assembled receiver directly into the ac outlet.
- Connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15uF, capacitor between each exposed metallic cabinet part and a good earth ground
- such as a water pipe, as shown above.
  Use an ac voltmeter with at least 5000 ohms/volt sensitivity to measure the potential across the resistor.
- The potential at any point should not exceed 0.75 volts. A le current tester may be used to make this test; leakage current must not seurement is outside the limits specified, mps. If a mo there is a possibility of shock hazard. The receiver should be repaired cked before retu ming it to the customer.
- Repeat the above procedure with the ac plug reversed. (Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feeture of the plug.)

**6**. 2

#### Picture Tube Reglecoment

The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For communed X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or an ... N.A.P. Consumer Electronics Corp. (NAPCEC) approved type.

Many electrical and mechanical parts in NAPCEC television sets have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components reted for higher voltage. wattage, etc. The use of a substitute part which does not have the same safety characteristics as the NAPCEC recommended replacement part shown in this service menual may create shock, fire or other hazards. the state of the s

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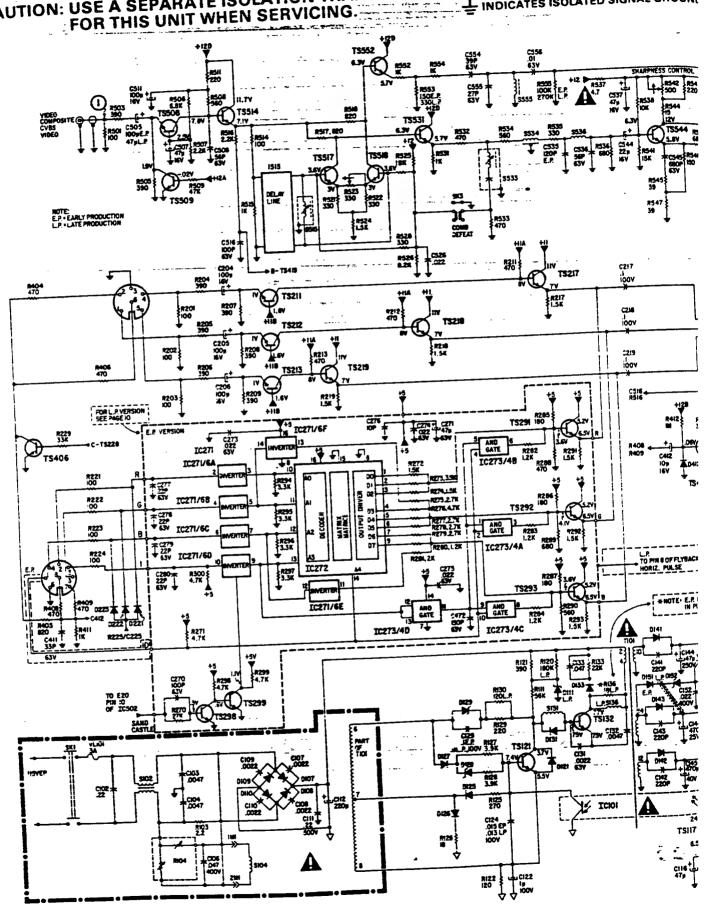
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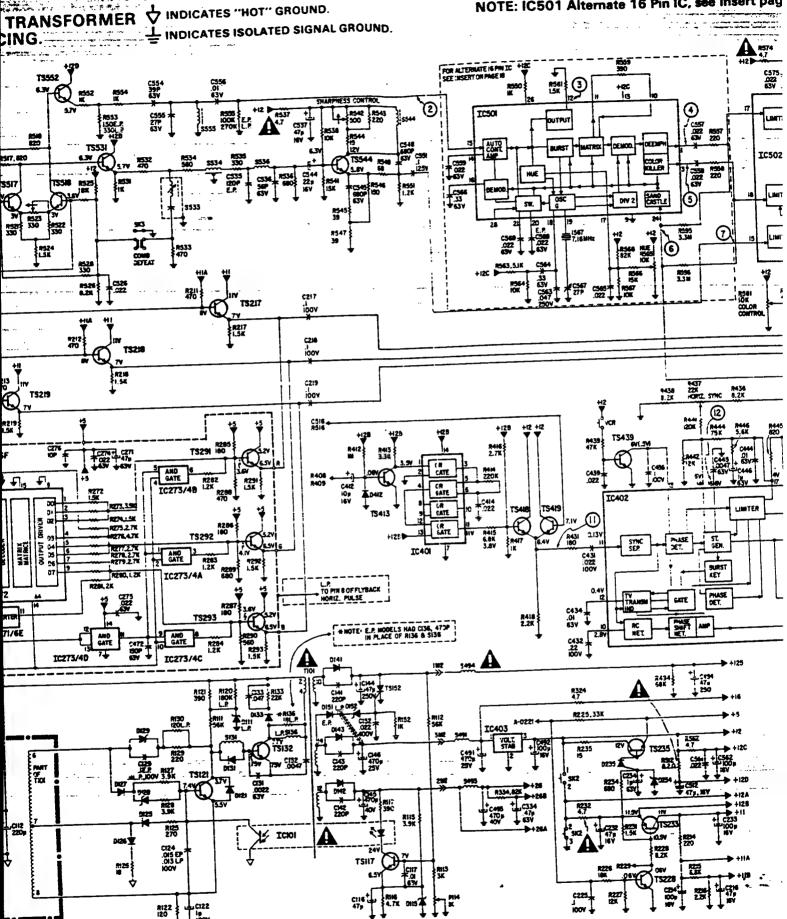
CAUTION: USE A SEPARATE ISOLATION TRANSFORMER

INDICATES "HOT" GROUND.

L INDICATES ISOLATED SIGNAL GROUND

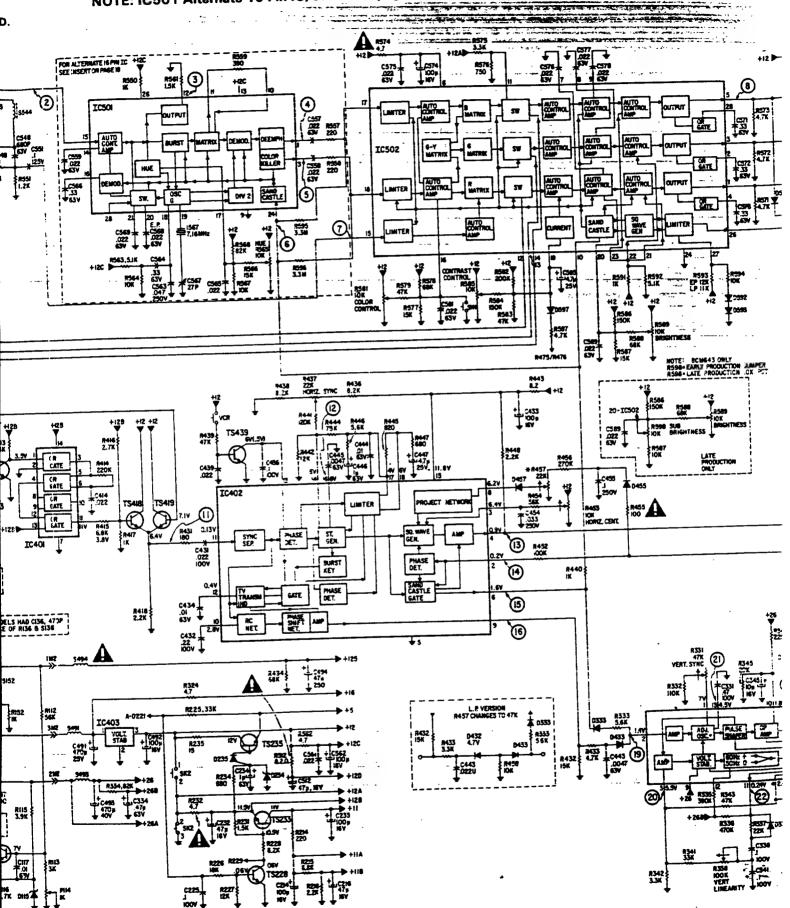


NOTE: IC501 Alternate 16 Pin IC, see Insert pag

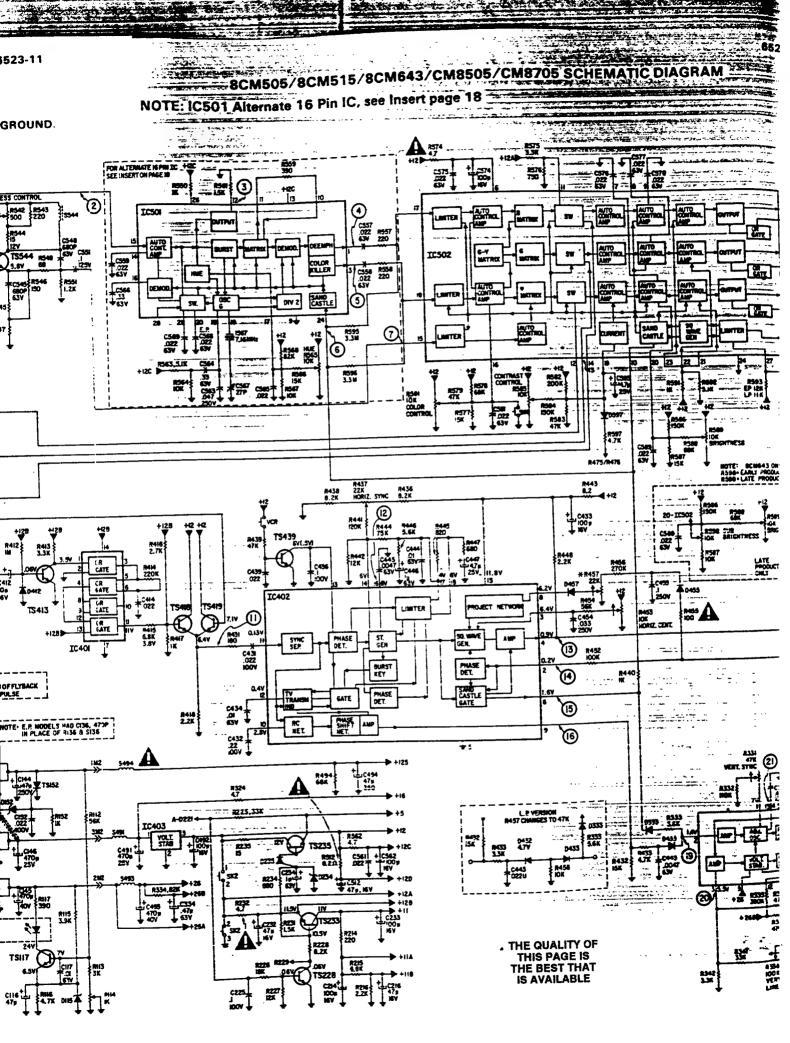


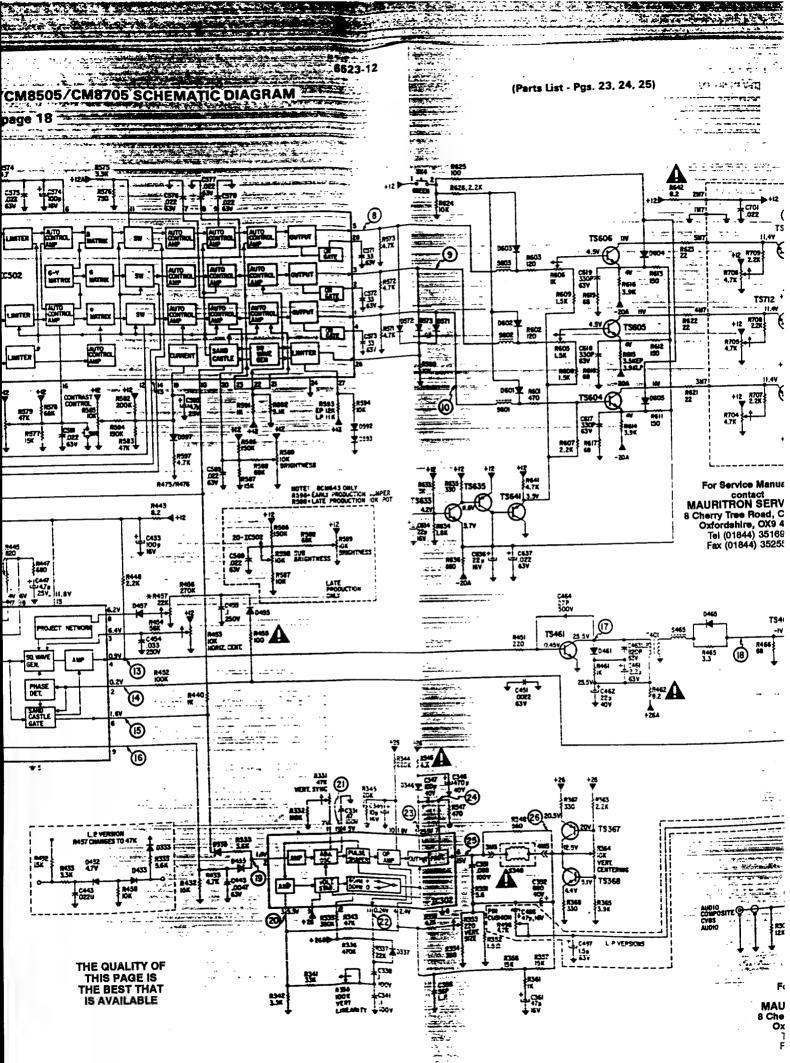
#### PCMEDE/8CM515/8CM643/CM8505/CM8705 SCHEMATIC DIAGRAM

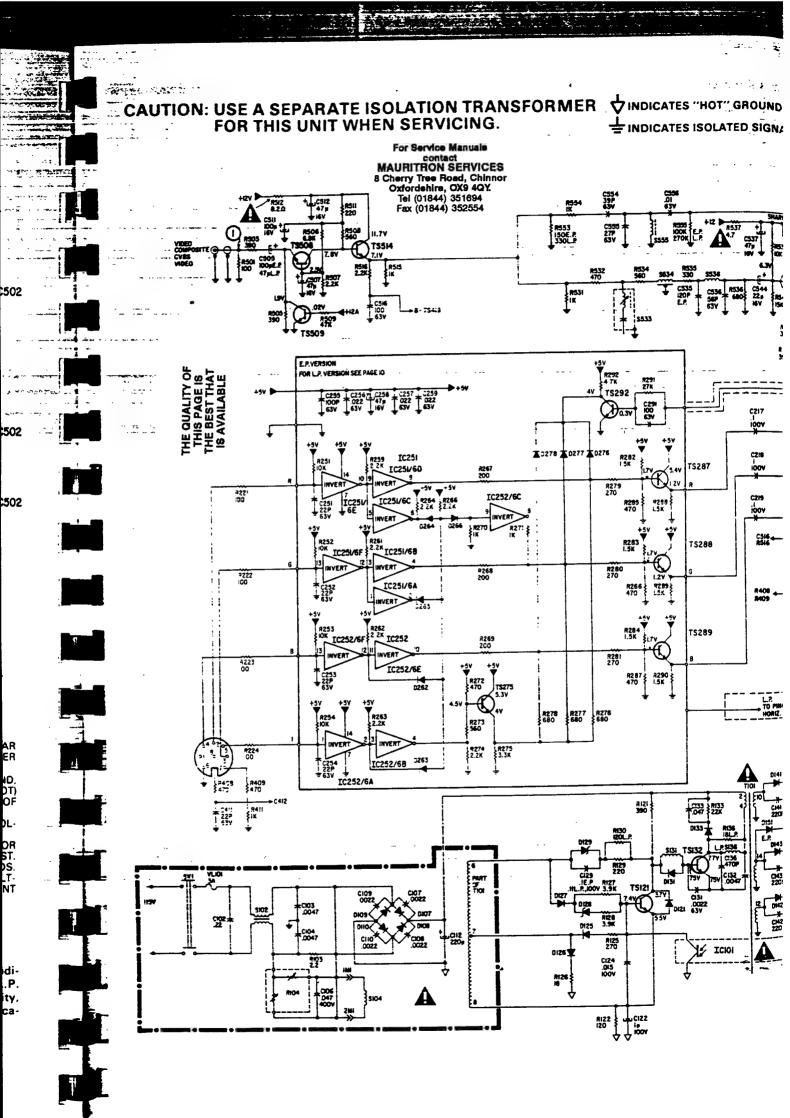
NOTE: IC501 Alternate 16 Pin IC, see Insert page 18



**NAP 6523** 



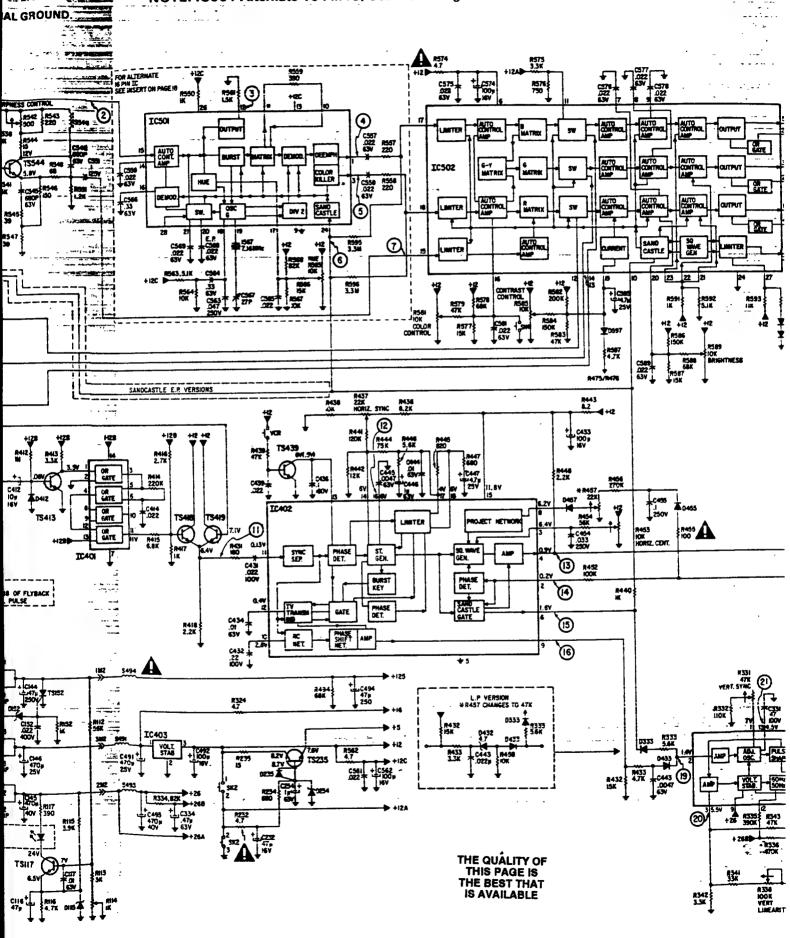


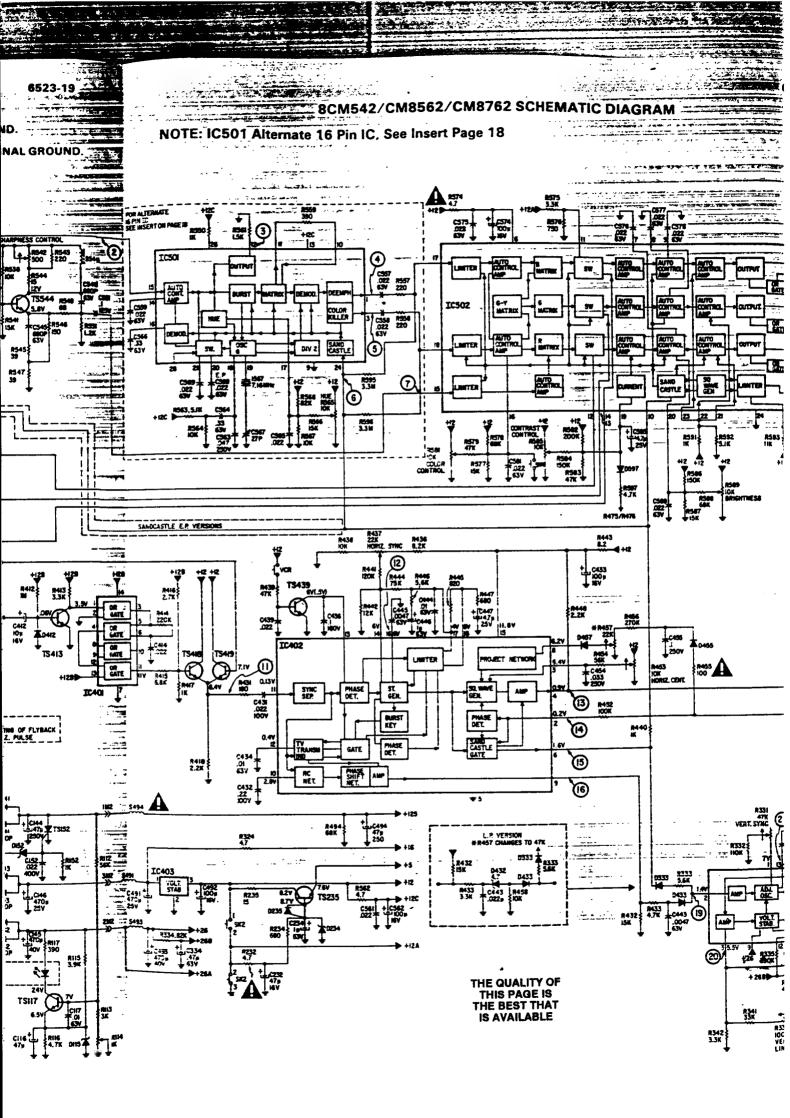


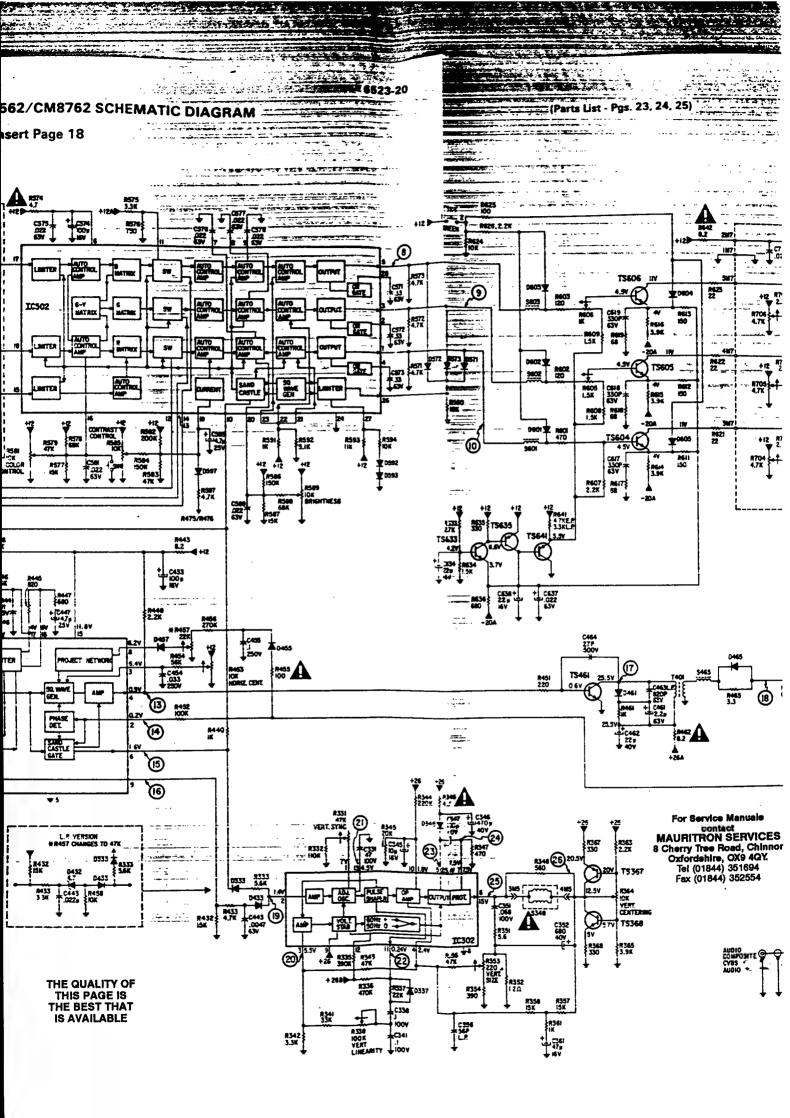
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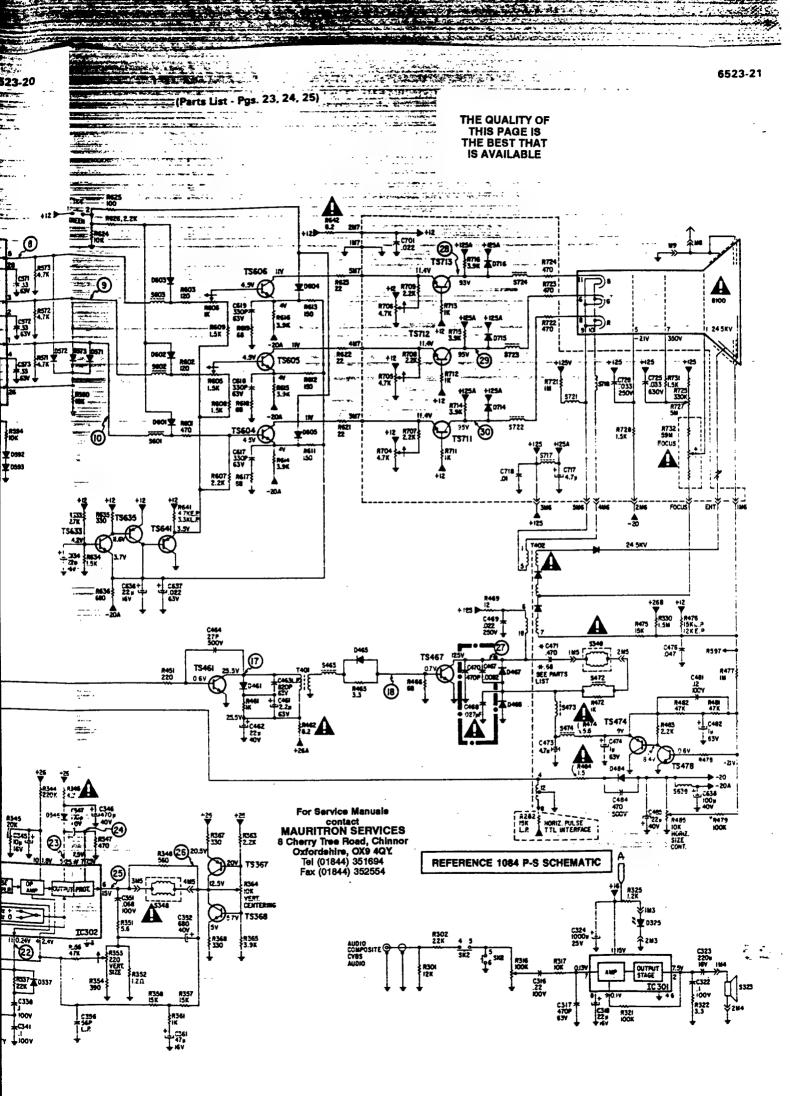
#### 8CM542/CM8562/CM8762 SCHEMATIC DIAGRAM

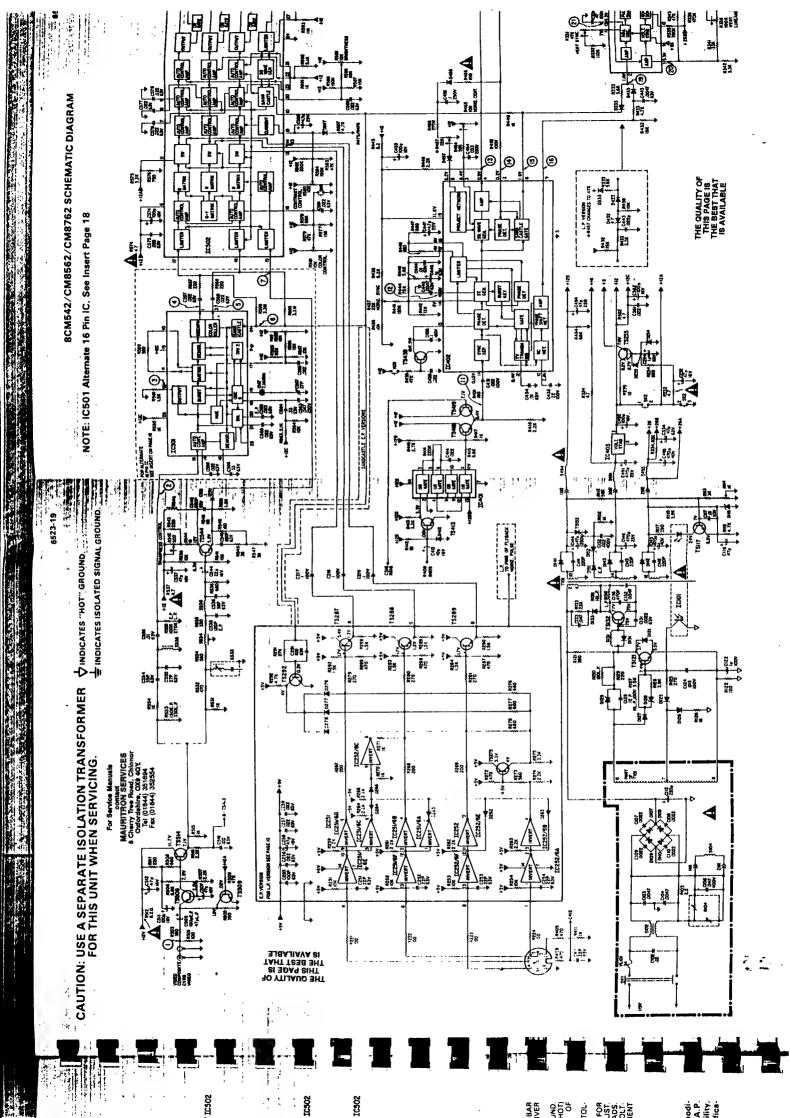
NOTE: IC501 Alternate 16 Pin IC, See Insert Page 18

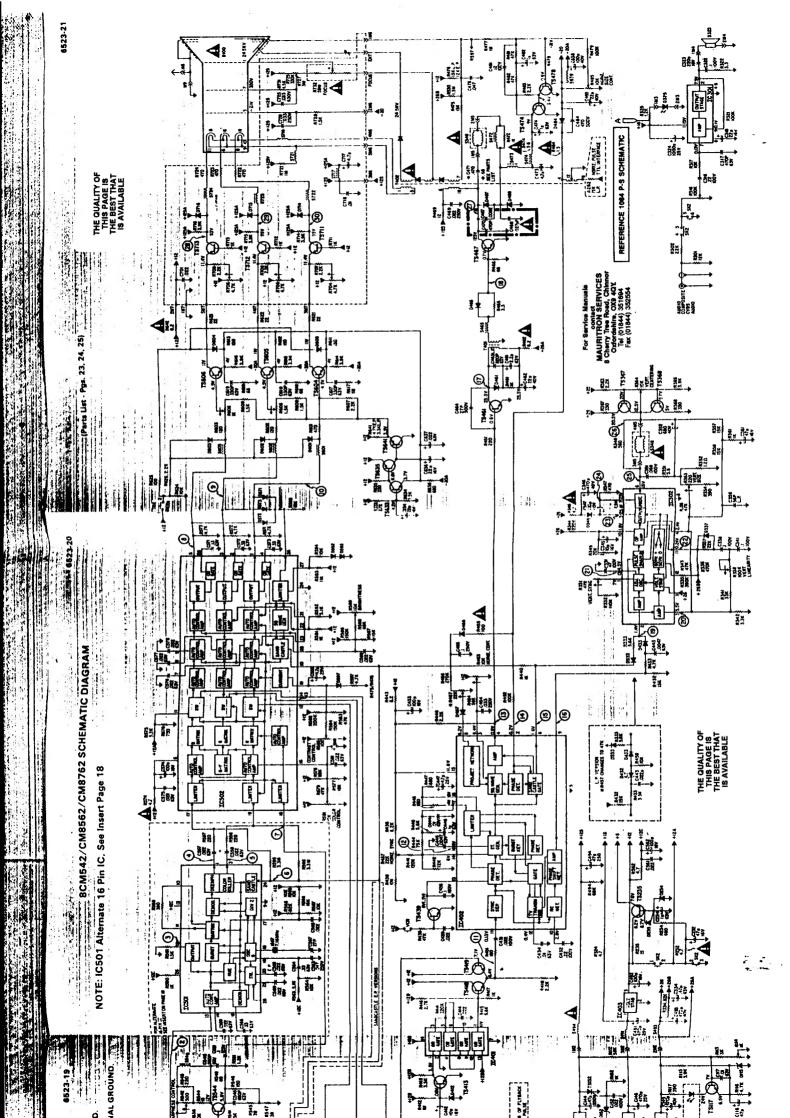


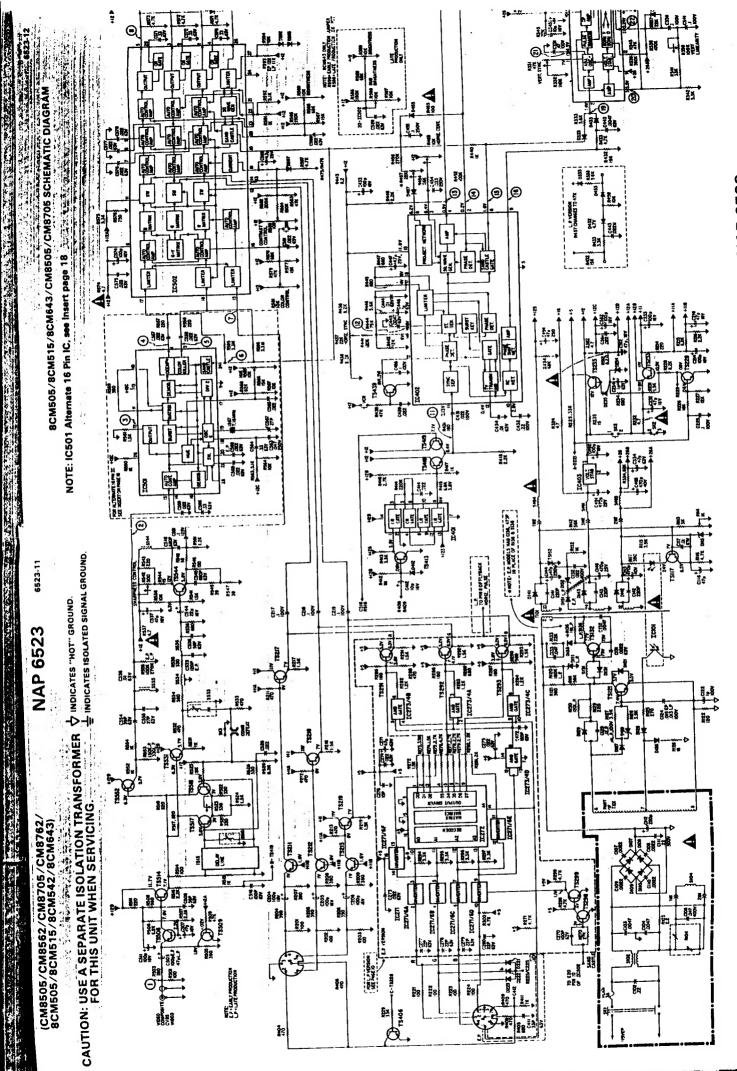


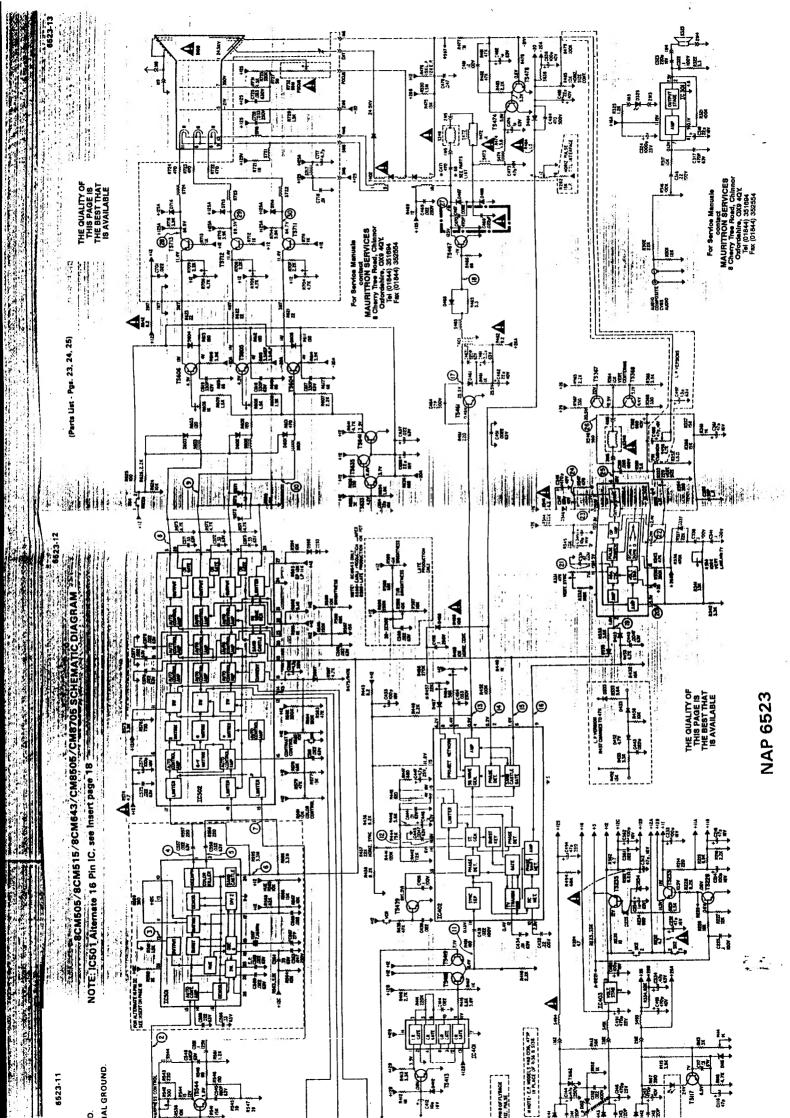


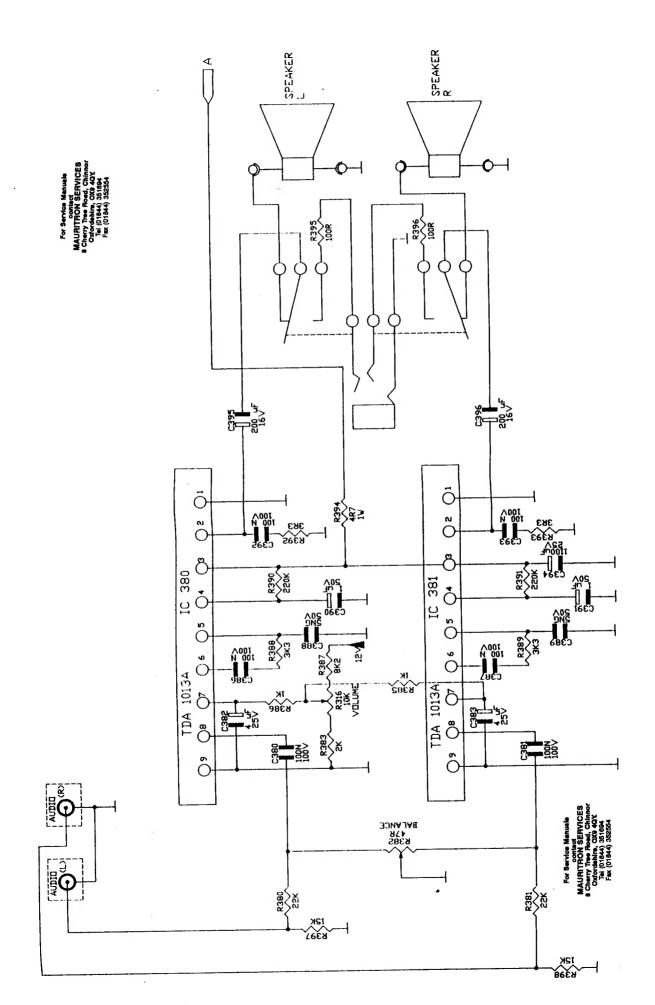












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